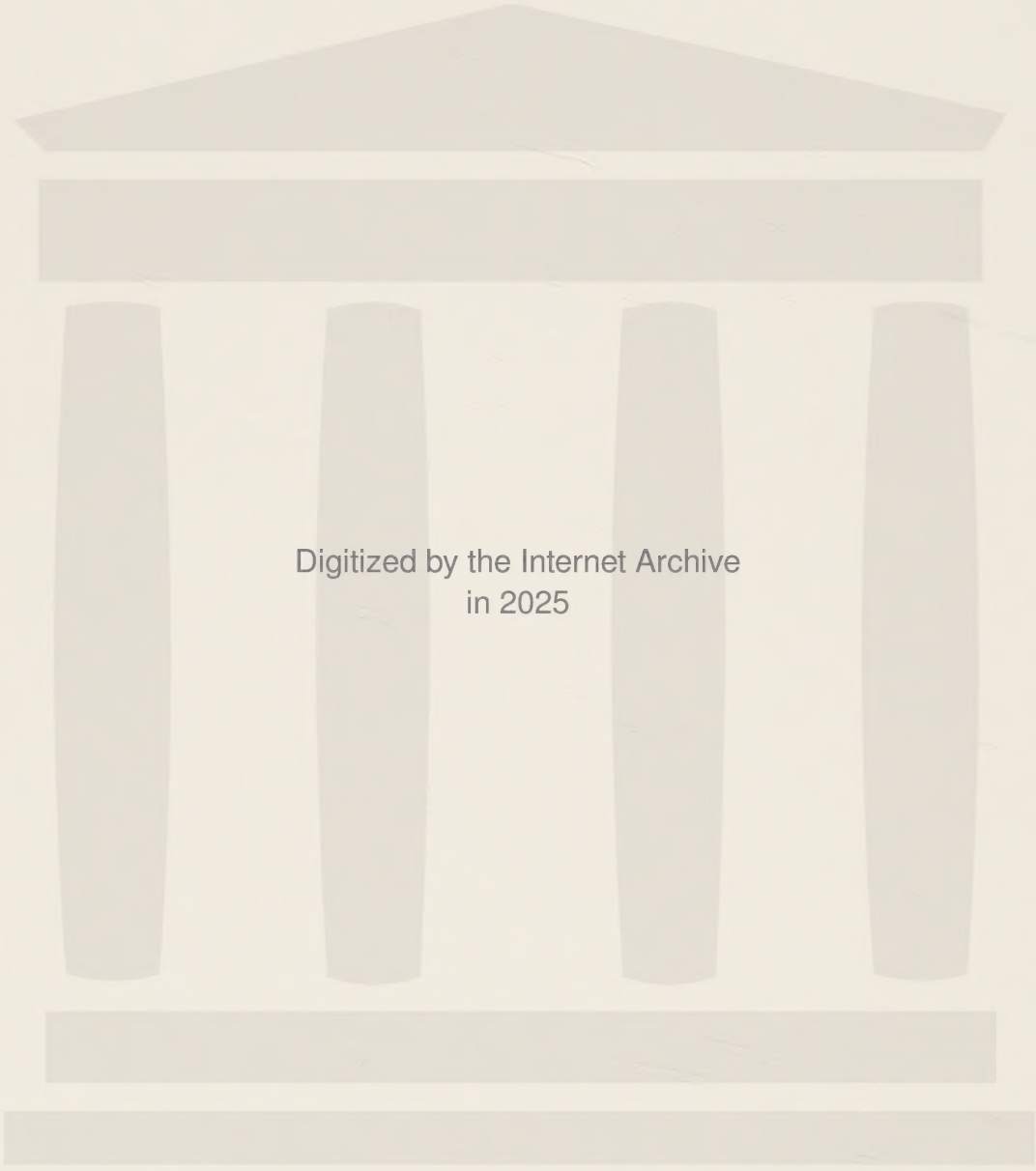
Marketing the products of aquaculture

FAO
FISHERIES
TECHNICAL
PAPER

276

FOOD
AND
AGRICULTURE
ORGANIZATION
OF THE
UNITED NATIONS



Digitized by the Internet Archive
in 2025

https://archive.org/details/fao-fisheries-and-aquaculture-technical-paper_1986_276

Marketing the products of aquaculture

by
Susan A. Shaw
Senior Lecturer in Marketing
University of Stirling
Scotland, UK

FAO
FISHERIES
TECHNICAL
PAPER

276

FOOD
AND
AGRICULTURE
ORGANIZATION
OF THE
UNITED NATIONS
Rome, 1986

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

M-44
ISBN 92-5-102460-X

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the copyright owner. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

© FAO 1986

PREPARATION OF THIS PAPER

This technical paper has been prepared as part of the output of the Fish Utilization and Marketing Service of FAO with the intention to fill gaps in instruction material and technical guidance with regard to marketing of products from aquaculture. It is hoped that it will help particularly the fish farmers producing relatively small volumes in making the right choice for their marketing arrangements.

The illustrations were prepared by Ms Elise Macrae of the University of Stirling, Scotland, UK.

Distribution:

FAO Fisheries Department
FAO Regional Fisheries Officers
FAO Fisheries Field Projects
Author
HP Selector
SI Selector

For bibliographic purposes this document should be cited as follows:

Shaw, S.A., 1986 Marketing the products of aquaculture. FAO Fish.Tech. Pap., (276):106 p.

ABSTRACT

The manual presents the considerations pertinent to marketing of aquaculture products with particular concern for the requirements of fish farmers producing small volumes. The topics discussed include: choosing products and markets; aquaculture economics and marketing decisions; distribution; pricing; communications with customers; quality; displaying fish; marketing cooperatives; planning and recording for marketing decisions.

It contains 55 figures, graphs and forms and each chapter concludes with a list of questions on the subjects it contains.

CONTENTS

		Page
1.	MARKETING AND THE FISH FARMER	1
	1.1 What Is Marketing?	1
	1.2 Successful Marketing	2
	1.3 Marketing And The Small Fish Farmer	3
	Checklist	4
2.	MARKETS	5
	2.1 Introduction	5
	2.2 Describing Markets: What Do Customers Want?	5
	2.3 How Many Markets?	7
	2.4 Markets And Change	8
	2.5 Demand, Supply And The Marketing System	11
	2.6 Markets And Competition	12
	2.7 What Kind Of Competition?	13
	2.8 Which Market System?	13
	2.9 Researching Markets	13
	2.9.1 Where To Get Information	13
	2.9.2 What Is Information Worth?	15
	2.9.3 Bias	15
	Checklist	16
3.	CHOOSING PRODUCTS AND MARKETS	18
	3.1 Choices	18
	3.2 Target Markets And Choice Of The Species	18
	3.2.1 Market Opportunities And The Strength Of Competition	18
	3.2.2 Capabilities, Resources And Experience	20
	3.2.3 Capabilities And Target Markets	20
	3.3 Checklists And Profits	21
	3.4 Processing	22
	3.4.1 Processing Choices	22
	3.4.2 The Advantages Of Freshness	22
	3.4.3 Salted And Dried Fish	22
	3.4.4 Smoked Fish	24
	3.4.5 Frozen fish	24
	3.4.6 Canning	25
	3.4.7. Processing Decisions	25
	3.4.8 References And Further Reading	26
	3.5 The Next Step	27
	Checklist	27

		Page
4.	AQUACULTURE ECONOMICS FOR MARKETING DECISIONS	28
	4.1 Economics And Marketing	28
	4.2 How Profits Are Earned	28
	4.3 Costs	28
	4.3.1 Types Of Costs	28
	4.3.2 Fixed Costs	28
	4.3.3 Variable Costs	30
	4.4 Sales Income, Costs And Profits	31
	4.4.1 Breakeven Points	31
	4.4.2 Profits	34
	4.5 Selecting Alternatives	34
	4.5.1 Ways Of Increasing Profits	34
	4.5.2 Stocking Rates	34
	4.5.3 Prices	35
	4.5.4 Changes In Costs And Prices	36
	4.6 Accounting And Record Keeping	38
	Checklist	38
5.	DISTRIBUTION	40
	5.1 Distribution Channels And Their Importance	40
	5.2 What Does The Distribution Channel Do?	40
	5.3 The Length Of Channels And Wholesale Markets	44
	5.4 Choosing Channels	45
	5.4.1 Assessing Options	45
	5.4.2 Estimating Profits	46
	5.4.3 Distribution Patterns	47
	5.5 Choosing Intermediaries	48
	Checklist	48
6.	PRICING	50
	6.1 Pricing Decisions	50
	6.2 Price And Output In Competitive Markets	50
	6.3 Pricing When The Fish Farmer Can Influence Prices	51
	6.3.1 Prices And Production Plans	51
	6.3.2 Prices And Sales Income	51
	6.3.3 Prices, Sales Income And Costs	53
	6.4 Prices And "Sunk Costs"	54
	6.5 Prices And Polyculture Systems	54
	6.6 Prices, Payments And Risks	56
	6.7 Prices And Other Areas Of Marketing	56
	Checklist	56

		Page
7.	TALKING TO CUSTOMERS	57
	7.1 Introduction	57
	7.2 Communications Tasks	57
	7.3 Choosing The Right Way Of Communicating	58
	7.4 Selling Tasks And Skills	59
	7.4.1 Selling Tasks	59
	7.4.2 Selling Skills: Good Presentation	61
	7.4.3 Knowing The Product And Production	61
	7.4.4 Understanding Costs	61
	7.4.5 Listen	61
	7.4.6 Good Preparation	61
	7.5 Using Agents	62
	7.6 Choosing Types Of Advertising	63
	7.7 Generic Advertising	64
	Checklist	65
8.	GETTING THE FISH READY FOR CUSTOMERS	66
	8.1 Quality	66
	8.2 Quality Control And Fish Farming	66
	8.3 Quality In Handling And Processing	67
	8.4 Handling Fish	67
	8.5 Good Hygiene	68
	8.6 Handling Wet Fish	70
	8.7 Live Fish	71
	8.8 Handling Frozen Fish	72
	8.9 Handling Salted, Dried And Smoked fish	73
	8.9.1 Salting	73
	8.9.2 Drying	73
	8.9.3 Smoked Fish	74
	8.10 References	74
	Checklist	75
9.	DISPLAYING FISH FOR CUSTOMERS	76
	9.1 Retailing Fish	76
	9.2 Retailing Choices	76
	9.2.1 The Choices	76
	9.2.2 At The Fish Farm	76
	9.2.3 Market Stalls	77
	9.2.4 A Shop To Sell Fish	77
	9.2.5 Travelling Sales	78
	9.3 Displaying Fish	79
	9.4 Facilities	80
	9.5 Displays	81
	9.6 Working Practices	82
	9.7 Further Reading	83
	Checklist	84

		Page
10.	MARKETING CO-OPERATIVES	85
10.1	Introduction	85
10.2	What Is A Co-operative?	85
10.3	What Is A Marketing Co-operative?	85
10.4	Advantages That Co-operatives May Offer	86
10.5	Marketing Co-operatives: The Difficulties	87
10.6	Running A Successful Co-operative	88
10.6.1	Initial Study Of Feasibility	88
10.6.2	Objectives	89
10.6.3	Rules And Responsibilities	89
10.6.4	Communications	89
10.6.5	Procedures	90
	Checklist	90
11.	PLANNING AND RECORDING FOR MARKETING DECISIONS	91
11.1	Record Keeping	91
11.2	The System	91
11.3	The Records	91
11.3.1	The Forms	91
11.3.2	Record of Production Activities	93
11.3.3	Record of Marketing Activities	95
11.3.4	Monthly Summary And Annual Balance Sheet	98
11.4	Planning	102
11.4.1	The Plan	102
11.4.2	How To Plan	104
11.4.3	Modifying Plans	106

List of Figures

Figure		Page
1.1	Satisfied Customers Come Back	2
2.1	What are the Substitutes for Fish?	7
2.2	How Should Fish Be Prepared?	8
2.3	Different Markets Have Different Needs	9
2.4	The Marketing System	10
2.5	Competition	12
3.1	Markets and Competition	18
3.2	The Product Life Cycle	19
3.3	Checklist: Markets and Products	21
3.4	Selling Fresh Fish	23
3.5	Drying Fish	23
3.6	Fish Smoking	24
3.7	Fish Freezers	25
4.1	Kovo Fish Farm 1985: Sales Income, Costs and Profits	30
4.2	Fixed and Variable Costs	31
4.3	Sales Income and Output	32
4.4	Breakeven Points	33
4.5	Choices and Profits	34
4.6	Overstocking and Profits	35
4.7	Effect of Changing Prices for Larger Sales	36
4.8	Zeno Fish Farm	36
4.9	Zeno's New Market	37
5.1	Distribution Channels	40
5.2	Margins Added in the Distribution Channel: An Example	41
5.3	The Tasks of Intermediaries	42
5.4	Key Channel Flows	43
5.5	Services for Members of the Channel	43
5.6	By-passing Stages on the Way to Consumers	44
5.7	Assessing Options	45
5.8	Comparing Two Distribution Routes	46
6.1	Competitive Markets	50
6.2	Examples of Different Demand Reactions to Price Changes	52
6.3	Responsive Demand	52
6.4	Incomes and Costs	53
6.5	Delot Fish Farm	54
6.6	Pricing and Output in Polyculture	55
6.7	Competing Species and Polyculture	55
7.1	Types of Advertising	57
7.2	Advertising and Personal Selling	58
7.3	Communications in Fish Marketing	59
7.4	Good Selling	60
7.5	Selling Rules	62
7.6	Making Notices Eye-Catching	64
8.1	Good Hygiene	69
8.2	How to Ice Fish	70
8.3	Carrying Live Fish	72

8.4	Good Practices in Fish Freezing	73
8.5	Storage Life of Dried Fish	74
9.1	Selling Facilities: Good and Bad	80
9.2	Displaying fish	81
11.1	Form 1 Sample Entry	92
11.2	Form 2 Sample Entry	94
11.3	Depreciation Costs: Sample Entry	100
11.4	Using Balance Sheet Information	103
11.5	The Annual Plan	104

1 MARKETING AND THE FISH FARMER

1.1 What Is Marketing?

Customers buy a product because it is the right product for them, available in the right place, at the right time and at a price which they can afford. They will not buy if their requirements are not met. Thus for any business which wishes to exchange its products with customers for money or other goods, customer requirements have to be understood and products offered which meet these requirements. Marketing is the name given to the management process responsible for finding out what customers need and supplying them as efficiently and profitably as possible.

Marketing is made up of 4 related activities:

(1) Finding out what the market wants now and what it will want in the future
The word "market" is used a great deal in this book. It means all the customers who might buy from the fish farmer now or in the future. It covers households who eat fish as well as the merchants, shopkeepers and stall holders who buy from the fish farmer to supply households. Finding out their requirements through market research is the first stage in the marketing process.

(2) Choosing target markets
On the basis of the findings of the market research and together with estimates of the costs of alternatives, target markets are chosen. These are the markets or parts of a market that the fish farmer chooses to supply. Often there are many different markets that the fish farmer might supply, each with different requirements. Those markets will be selected which provide the best match of customer requirements and the capabilities of the fish farmer, together with the best opportunities to make profits.

(3) Meeting the needs of target markets
Decisions have to be made as to how needs are to be met and then the decisions have to be carried out. The first and most central questions are about the fish itself - What species are to be produced? At what time of the year should they be available? Should they be processed or preserved in any way? What sizes should be grown? Many other decisions have also to be taken - How should the fish be wrapped? Who is going to deliver the fish to customers? What transport should be used? All these are marketing issues.

(4) Giving customers information
People will not buy a product if they do not know anything about it. Do potential customers have enough information about the product? If not, what information should they be given? How and where should they be given the information? All these are marketing decisions.

Marketing has a central rôle in the management of a fish farm. Any decisions which are taken on any aspect of fish farm management which affect customers are part of marketing and must be considered from the marketing point of view. Even decisions which seem purely technical may have a marketing element. For instance, if using a particular type of feed affects the price which customers must pay, the decision must be considered from the marketing aspect. If the location of the farm affects the condition in which the fish reach customers, it is in part a marketing decision. Harvesting times should be decided not only on the grounds of convenience, but also in the light of the times when customers want to buy fish. There are many other examples of interrelationships like this.

Figure 1.1 Satisfied customers come back

1.2 Successful Marketing

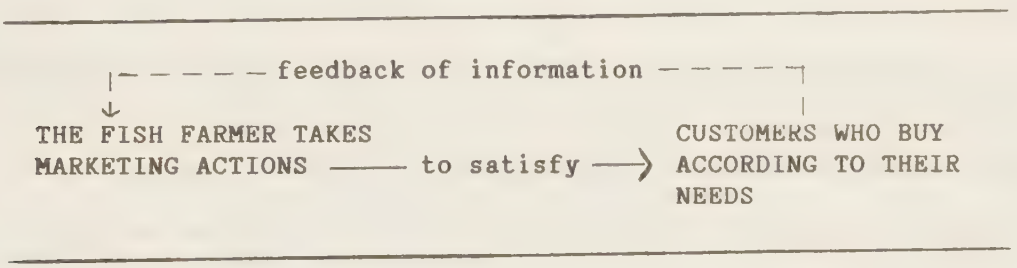
The key to successful marketing lies in understanding that the closer the fish farm can come to supplying customers with what they want, the more they will buy or the more they will be prepared to pay. This in turn will make the fish farm more profitable. The opposite is equally true in that the further away the offering is from customers' ideal, the less likely they are to buy:

- it does not make sense to produce types of fish which people do not want to eat
- it does not make sense to produce fish at prices which customers cannot afford to pay

- it does not make sense to produce poor quality fish if people want and are prepared to pay for good quality
- it does not make sense to produce fish if you cannot get them to customers in the condition that customers want
- it does not make sense to sell smoked fish if people would prefer dried fish
- it does not make sense to smoke fish if people would prefer fresh fish
- it does not make sense to produce small fish if people would prefer large ones.

These ideas are not new and there are many examples of successful marketing in aquaculture. For centuries the peoples of the Indo-Pacific regions have reared fish and there are now successful aquaculture ventures in South America, North America, Europe, and Africa as well. Not only finfish but also shrimps and prawns, oysters, clams, mussels, scallops and other molluscs have been produced through successful commercial aquaculture. These initiatives would not have been successful without successful marketing and had they not been producing the right products in the right way for customers.

Why then is there a need for a manual like this one? The reason is that, unfortunately, there have also been many unsuccessful projects, often due to poor marketing. Species have been chosen for culture because they were convenient to grow without asking whether the markets concerned actually wanted the fish. Projects have failed because, although the product was right, there was no way to get it to customers. Projects have failed because fish were chosen that could not be produced at prices that customers were able to pay. Projects have failed because they have tried to produce far more fish than people were able to buy.


feedback of information
THE FISH FARMER TAKES MARKETING ACTIONS
to satisfy
CUSTOMERS WHO BUY ACCORDING TO THEIR NEEDS

The only real way that mistakes like this can be avoided is to remember that marketing decisions use the needs of the customer as the basis for decision-taking.

1.3 Marketing And The Small Fish Farmer

Marketing is not something just for big companies, nor is there any reason why they should be better at marketing than a small business. Small fish farmers even have some advantages:

(1) Marketing farmed fish is easier than marketing wild fish
Often farmed fish compete with fish from marine or freshwater fisheries but fish farmers may find it easier than fishermen to meet customer needs. This is because the fish farmer is able to control operations

in a way that fishermen cannot. Fishermen can only catch the fish available from rivers, lakes and oceans and at the times of the year when they appear. The fish farmer by contrast can look at customer demand first and then choose the species that most closely meets needs. Fish farmers can more easily supply the fish when the customer wants them and they are less at the mercy of the climate than fishermen. Fish farmers can control the size and quality of fish more effectively than can fishermen.

(2) Small businesses have a marketing advantage
Small businesses are often better at marketing than larger ones, surprising though it may seem. The owners of a small business, because they are close to the actual workings of the business and because they are close to their customers are likely to find it easier to understand customer needs and to organise themselves to meet those needs. Everyone tends to know what is going on in a small business, an advantage since it makes it easier to get everyone to understand what they have to do for customers. Decisions do not get lost in committees and it is difficult for anyone to escape their responsibilities, which means that responsibilties are taken more seriously.

This manual is designed to help fish farmers, particularly family operations, with their marketing. None of the ideas and guidelines in the manual are complicated and by applying them carefully, it is hoped that the venture will prosper.

CHECKLIST

1. ARE YOU WILLING TO SPEND A SIGNIFICANT PORTION OF YOUR TIME THINKING ABOUT YOUR MARKETS?

2. WHAT ARE YOUR CUSTOMERS' REQUIREMENTS? DO YOU MEET THEM?

3. IS YOUR PRODUCT AS ACCEPTABLE TO YOUR CUSTOMERS AS THAT OF YOUR COMPETITORS?

4. ARE THERE ANY WAYS IN WHICH YOU COULD IMPROVE WHAT YOU OFFER CUSTOMERS?

---

2. MARKETS

2.1 Introduction

Markets determine marketing policies so markets have to be researched before policy making can start. This chapter gives guidelines for the information which is needed about markets and ways to get this information.

Each market is different and is shaped by different forces so it is not possible to generalise about customers or to take short cuts by using information from one market to take decisions in another. Because markets change, even in the same market information has to be updated as circumstances alter. This means that the responsibility for collecting information rests with the fish farmer and there is no way of avoiding the need for market research. Fortunately, however, although we cannot generalise about markets, we can generalise about the types of market information which are necessary so the guidelines in this chapter should be useful.

2.2. Describing Markets: What Do Customers Want?

The first stage is to find out what customers want to buy. The key questions to be answered are listed below.

Question	Comment
which species?	Look at the choices people are already making. People's tastes are formed slowly and are strongly influenced by traditional eating habits. The less familiar a species is and the more different it is from the other fish or foods eaten, the greater the risk that it will be rejected or that it will take a long time to build up demand.
what size? what form? what quality? grading?	Normally the higher the quality of the fish, the larger the size, the greater the amount of processing, the higher will be fish farm costs. Therefore, it is not just a question of what customers would like, but also a question of how preferences are influenced by prices.
what price?	Price is one of the main influences on the amount that people buy. Normally as prices rise, less is bought and as prices fall more is bought but there are big differences between markets in exactly how much sales change when prices change. If there are close substitutes to which people can turn when prices rise, sales fall considerably and if prices

	fall relative to the price of substitutes sales will rise. The closest substitutes are similar species, but different species can also be substitutes, as can other types of food. Poor people will be more affected by prices than rich people. If prices rise, poor people are more likely to look for cheaper substitutes than rich people. Substitutes are affected by transport costs. If roads are good and it is easy to move fish, more variety and more substitutes are likely to be available.
what services? (e.g. preparing and wrapping fish)	The closer the competition faced from other fish farmers and fishermen, the more important it is to pay attention to the details of people's requirements. If customers want to buy fish prepared in particular ways, it is best to find out what these are. Otherwise customers will buy from someone else who does offer these services.
when to sell?	Customers buy different amounts and types of fish at different times of the year. Sometimes this is because demand increases at the time of festivals and holidays or because other fish or other types of food are not available. In this case production should be planned as far as possible to meet demand at these times. Sometimes fish are only landed by fishing boats at certain times, but this can mean unsatisfied demand at other times of the year. This represents an opportunity for the fish farmer who can try to plan the time of harvesting to meet the unsatisfied demand.
where do people buy?	Some fish farmers are fortunate enough to have customers close to the fish farm so that they can sell from the farm itself. Others must take the fish to customers and identify the most convenient buying points for them. The most effective way of selling to customers may involve using merchants and retailers. In this case, the fish farmer must identify their needs as well. They are influenced by the needs of households but they are also concerned with matters such as transport arrangements, methods of paying for fish, size of loads and the timing of deliveries. Much fish is eaten in restaurants, canteens, hospitals and other institutions. The needs of these institutions for timing, size of loads, prices, preparation of fish must also be identified.

Figure 2.1 What are the substitutes for fish?

This list is not exhaustive and other questions can be added from thinking about your own markets. There are however two important points to note about the list. Firstly, it is important to pay great attention to the detail of customer requirements. It is a pity to get most of the main things right and then lose sales because of being careless on small points. Secondly, all these points are interrelated. Some examples of this are:

richer customers - higher quality - higher price
out of season sales - higher price
distant markets - processing to preserve the product

Customer needs must be thought of as a "mix" of needs rather than being separate from each other. For instance, the more highly processed the product, the higher the quality, the further the product has to travel, the more elaborate the packaging, the higher will be the costs of the fish farmer and the higher the price that has to be charged to cover these costs. The fish farmer has to be clear whether the market both wants and can pay for the product or whether in fact it would be satisfied with something simple but which it could afford.

2.3 How Many Markets?

Markets often divide into sub-markets with needs that are different from each other. Richer customers may want higher quality fish than poorer customers. Merchants buying for export may insist on standard grades and regular deliveries while local customers may be less bothered by this.

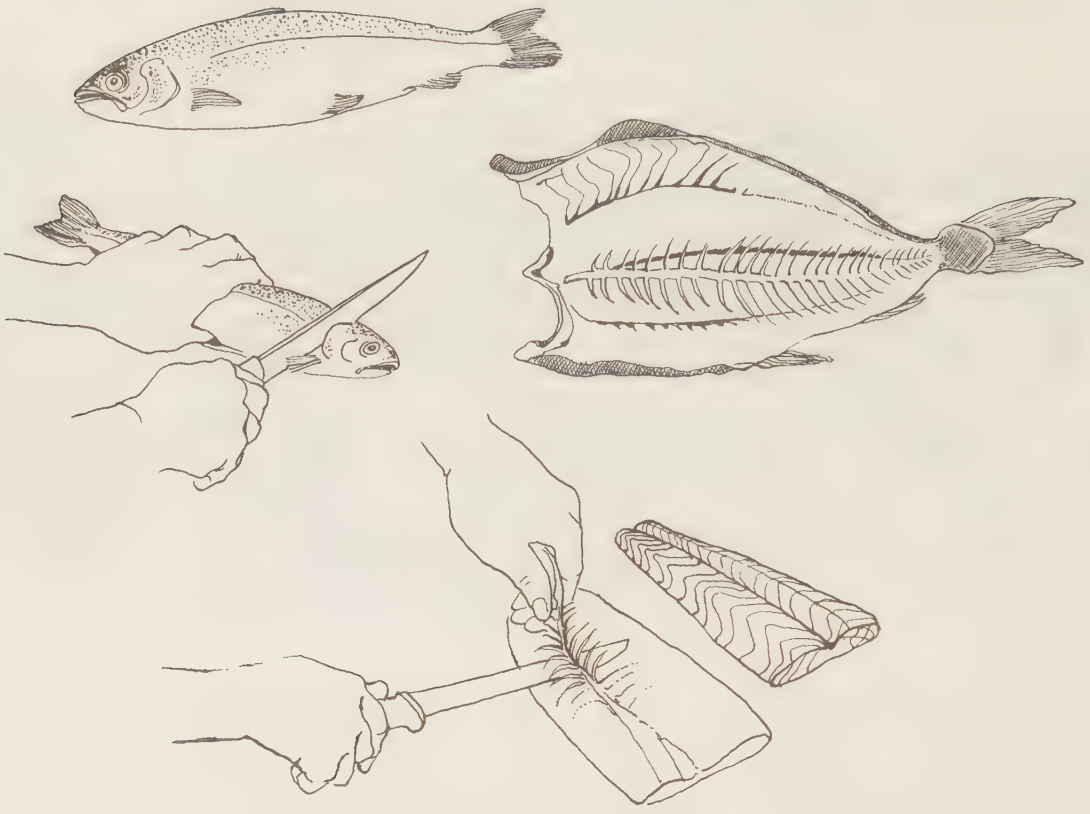


Figure 2.2 How should fish be prepared?

Processors may want to buy gutted fish, prepared for processing, while local customers may prefer whole fish. Merchants may buy on credit while households pay as they buy. Some restaurants may want high quality fish delivered daily, others may be more price conscious. There are many other examples.

If the differences in the demands of sub-markets are meaningful and the sub markets are large enough, it may be sensible for the farmer to offer different "mixes" to each sub-group or to cater for the needs of some groups only. Thus the first step is to identify the different sub-markets.

2.4 Markets And Change

Finding out market requirements is the first step, but it does not go far enough. The second step is to understand how markets work. Any marketing decision is a decision about action to be taken in the future and in order to predict what will happen in the future, it helps to understand the forces which shape it.

It is useful to start by drawing up a picture of the marketing system and its environment as shown in figure 2.4.

The marketing system is the system of relationships between suppliers and customers. The working of this system can be changed by changes in outside forces, which alter conditions in markets and also the conditions under which markets are supplied.

Figure 2.3 Different markets have different needs.

There are many forces in the environment which can have an impact on markets. For instance, a technical breakthrough in the farming of a new species could increase competition from substitutes. A government subsidy to help fish exports could open up new markets in other countries. Rising prices for meat could increase the demand for fish. Some other examples of the impact of environmental changes on markets are shown below:

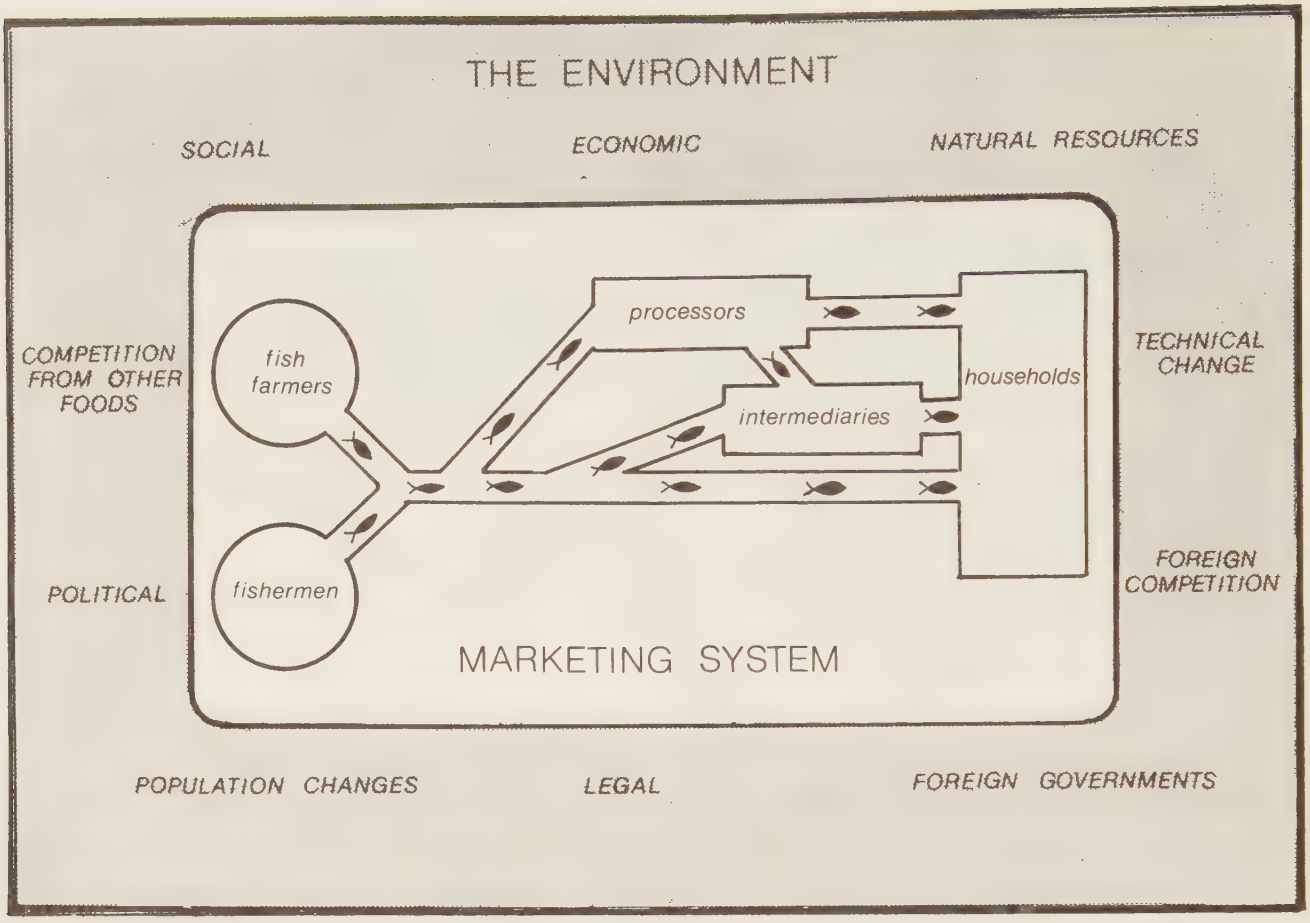


Figure 2.4 The Marketing System

FORCE	EXAMPLE	EFFECT
economic	falling incomes per head	people have less money to buy fish
political	campaigns to persuade people to eat fish	people eat more fish
demographic	a. population grows and incomes grow b. population grows but family incomes do not	increase in demand for fish families have less money to spend on fish and need cheaper fish
natural resources	good agricultural harvest	people have more money to spend on fish
international	ban on fish imports	rising demand for local fish
social	people become more aware of the food value of fish	people eat more fish

Changes in the environment alter the conditions under which markets are supplied. Falling feed costs could reduce the price at which fish can be supplied. Water shortages could reduce the quantities of fish supplied. Construction of a new road could increase the supplies which come in from outside areas. These changes must also be analysed because they effect the balance of supplies relative to the demand from customers. As a consequence, the conditions under which customers are prepared to buy from suppliers change. This is discussed further in the next section.

2.5 Demand, Supply And The Marketing System

Prices and the ease with which the fish farmer can sell are affected by the strength of demand from the market and the volume of supplies being offered by fish farmers. If demand is greater than supplies, customers bid up prices to obtain the supplies that they want. If supply is greater than demand at existing prices, suppliers lower prices to encourage customers to buy the surplus. This goes on until the amounts supplied are equal to the amounts demanded and prices will stay at this level until the next disturbance takes place.

Disturbances are caused either by changes on the demand side or on the supply side. For instance, if customers want to buy more of one species of fish because their incomes have risen, this will increase demand and prices will go up. Customers are competing with each other to get the supplies which are available and some customers are prepared to pay higher prices to get the fish which they want. If supplies increase, perhaps because of favourable growing conditions, but demand has not increased, then prices will fall. This is because lower prices are needed to absorb the increase in supplies. The effects on prices of such changes are summarized below:

Demand rises, supplies constant	Prices rise
Demand falls, supplies constant	Prices fall
Demand constant, supplies fall	Prices rise
Demand rises, supplies rise	If demand change is stronger than supply change, prices rise and vice versa
Demand falls, supplies fall	If fall in demand is greater than the fall in supply, prices fall and vice versa

Demand changes as a result of changes in preferences, changes in prices of substitutes and changing incomes are especially important. The first two

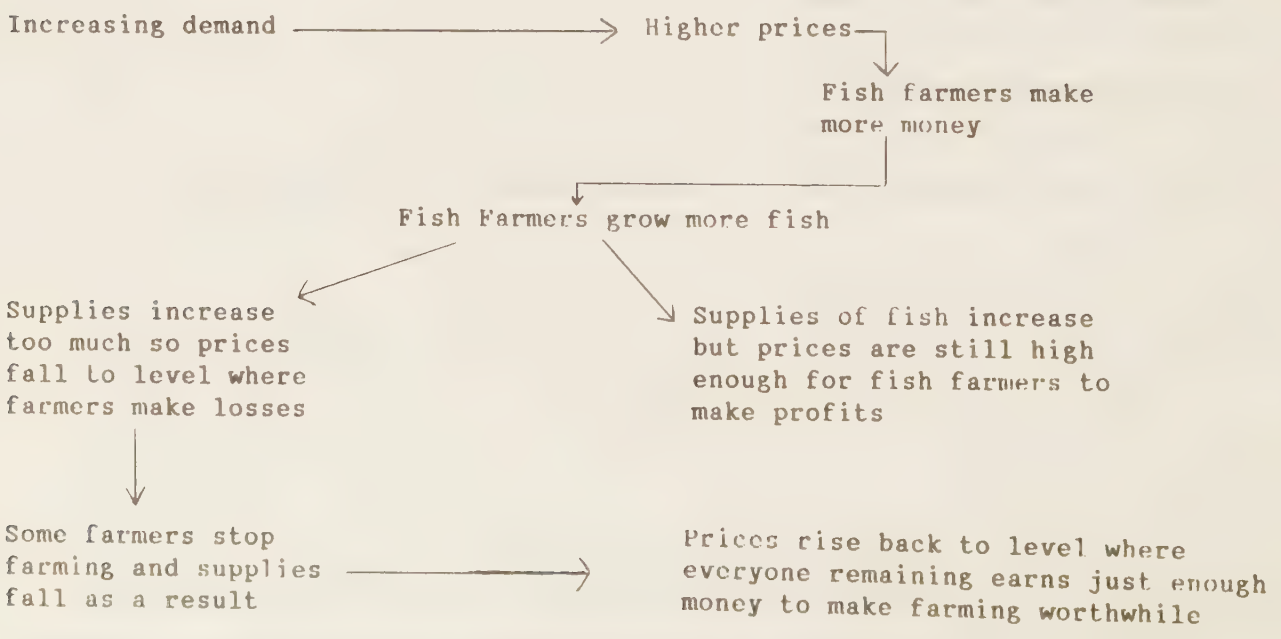
have straightforward effects. Rising prices of substitutes and greater liking for the species will increase demand and falling prices of substitutes and a fall in popularity of the species will have the opposite effect. The impact of changing incomes can be difficult to assess, although it is very important. If people have low incomes and have not been able to afford as much fish as they would like, when their incomes rise they buy more fish. If, however, people are already eating a lot of fish, they may choose to buy more of other things like meats instead and they will not buy more fish in total, although they may choose to buy more higher quality fish and less cheaper fish.

Supplies change due to the effect of environmental changes such as changes in the cost of feeds, changing costs of labour, changing technology and changing natural conditions.

2.6 Markets And Competition

Changing prices reflecting changes in demand and supply also reflect changes in the amount of competition among suppliers for customers. Increasing demand, by leading to higher prices, tends over time to lead suppliers to increase the amount they supply and cause new suppliers to emerge. This is because the higher prices have acted as a signal that it is more profitable to supply than before. If there are sites and resources available, supplies will go on increasing until prices fall back to a level where no one thinks they will make money by any more expansion. Sometimes, farmers over-estimate how much the market will buy without falling prices, and prices settle at a level where no one is making any profits. Some people may have to stop farming as a result. Therefore, since the state of competition has a big effect on profits, estimates of the strength of competition have to be made when markets are being studied.

Figure 2.5 Competition


Increasing demand
Higher prices
Fish farmers make more money
Fish Farmers grow more fish
Supplies increase too much so prices fall to level where farmers make losses
Supplies of fish increase but prices are still high enough for fish farmers to make profits
Some farmers stop farming and supplies fall as a result
Prices rise back to level where everyone remaining earns just enough money to make farming worthwhile

2.7 What Kind Of Competition?

In the example in section 2.6, there are lots of suppliers and the resources are available to increase supplies easily. It is not always like this. Sometimes there are only a small number of fish farmers or fishermen supplying a market, either because there is no land or water to farm any more fish, or because the market is too small to make it worthwhile for a lot of people to supply it. If this happens the market share or the part of sales taken by each fish farmer is much larger than when there are lots of fish farmers. This means that each fish farmer can have a big effect on overall supplies by changing the amount he produces, unlike the situation when there are large numbers of fish farmers and each supplies only a small part of total supplies.

When there are small numbers of farmers, the individual farmer may have quite a lot of control over the price of the type of fish which he is farming. The amount of control the farmer has over price also depends on the bargaining power of traders. If the market is dominated by a small number of traders to whom the fish farmers sell, the power of the fish farmers may be limited and they may be offered low prices by the traders.

2.8 Which Market System?

Finally, the fish farmer has to find out exactly which customers and suppliers are part of his marketing system. For instance, there may be a small number of local fish farmers supplying prawns, all selling to the same merchant. The merchant however then sells the prawns to an exporter who is in turn competing with exporters from different regions and from other countries, all of whom are supplying the same world markets. In this case, the prawn farmer does not just face competition from his neighbours - he faces competition from prawn farmers in other countries as well. Changes in prices and trading conditions do not just depend on local conditions - they depend on international conditions as well. By contrast, fish farmers in an isolated area with poor roads may not be affected very much by what is going on in the rest of the world.

2.9 Researching Markets

2.9.1 Where to get information

The next step is to collect information to answer questions about markets and there are 4 different sources which can be used for this:

(1) Look at your records
It is a good idea to keep some information about your business. (This is looked at in more detail in chapter 11.) This should help to give information about past sales and how they are changing, as well as prices received. These can then be compared with outside information

to see if your experiences have been the same as everybody else. This will help in understanding customers, markets and competitors and to improve marketing if necessary.

(2) Talk to others

Customers are the best people to ask about their needs and how they are changing, whether they are merchants, retailers, caterers, institutional buyers or households. By watching them and listening to what they say, a lot can be learned. If you have built up a good relationship with your customers by meeting their needs in a courteous and friendly way, customers will normally be willing to answer any questions which you have. Households know the reasons why they are buying different types of fish. Retailers and merchants and caterers know a lot about supply and demand in the market as a whole.

(3) Use other people's records

Normally other business people will not let you see their records, but governments collect information which may be helpful. This information is usually about landings of fish, production of farmed fish, information on trade in fish and sometimes prices. If this information does exist (unfortunately it is often difficult to find), it can be useful to identify trends in the market. This will help to answer questions such as:

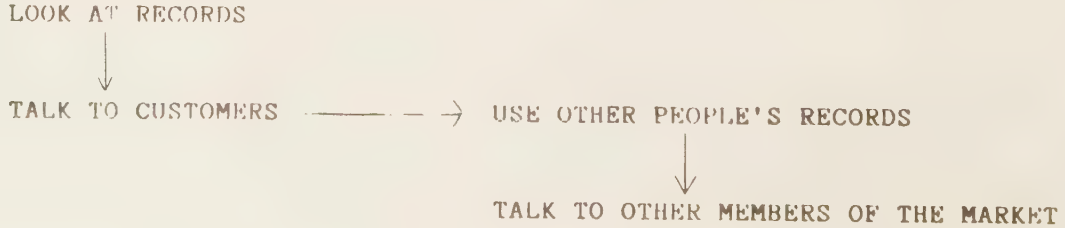
- is the market growing?
- have prices been rising?
- are supplies of fish increasing?

Local fishery officers and other local government officials are the first people to ask for information. Government officials can be helpful in explaining the reasons for the trends seen in the statistics. Government officials sometimes have lists of merchants and traders which are helpful in finding more customers. Sometimes merchants belong to trade associations. These trade associations can also give lists of members and sometimes other useful market information.

(4) Talking to other members of the market

Not all the merchants or retailers or households will be customers. Some of them are likely to be customers of competitors. In new markets you will be starting off without customers at all. By talking to other members of the market a fuller picture can be built up of what is going on and why it is happening.

Generally, the costs of getting information increase in moving from the first to the last of these sources. Looking at records just takes up time, as does talking to customers during normal meetings. If you need to talk to governments and trade associations this involves travel costs as well as time, as does contacting people in the marketing system whom you do not normally see. Therefore it is prudent to use the cheapest sources first and then only move on to the more expensive sources if information is not available from other sources and the cost of the extra effort is thought to be worthwhile:



2.9.2 What is information worth?

Collecting information must always be justified in terms of its value. There is no point in collecting information for its own sake or collecting more information than is needed. For instance it is likely to be quite adequate to have a rough idea of the share you have of the market and the number of competitors - there is no need to find out what everyone is selling down to the last kilo. As long as you can identify the main trends in the market which are likely to affect you, you probably will not need precise statistics to back this up. They would be good to have, but might cost a lot of effort to obtain. How much information is needed and how accurate it should be can be decided by:

1. deciding why you want information
2. making a list of the information needed
3. deciding how accurate the information has to be to take decisions
4. deciding whether the costs of getting the information will be justified by leading to a better decision.

2.9.3 Bias

"Bias" means the way in which information can be distorted on its route from the source of the information. It can be a serious problem in market research and it is necessary to be aware of it and avoid it if possible. Bias can occur because people do not say what they really think, because you do not note what they are saying properly and because the wrong people are selected to give information:

(1) What people say
First, bias can be a problem when asking customers questions about things which are normally part of negotiations. For instance, merchants may not be willing to say how they expect prices to change, because that might influence the way in which you bargain with them. They may not want to talk about their customers because you might then deal directly with them. If the information is sensitive in this way, it will be necessary to talk to other people as well to try to get better information. Secondly, people sometimes find it difficult to give answers because the questions are too difficult. Questions about things of which people have little experience are very difficult. The best example is of people's attitudes towards eating new types of fish and fish products which they have not seen before. Because they have no past experience to fall back on they cannot give very accurate answers. There is nothing to be done about this, except to go ahead only very cautiously with plans to produce such unfamiliar products. This will let you judge from actual reactions whether it is worth expanding things further.

(2) Listening
We can think faster than we listen, so it is easy to miss things that

people are saying by not concentrating properly. It is easy to miss answers by not asking clear questions in a way which people understand. It is easy to talk and put ideas into people's heads rather than listening to what they want to say. These problems can be avoided by thinking carefully through the questions you want to ask before meeting people, making them as simple as possible and listening very carefully to the answers.

(3) Selecting people

There are likely to be different groups of merchants, retailers and households in a market. From talking to just one group, a misleading picture can be given. For instance large merchants may behave in different ways, have different customers and deal in different amounts of fish compared with small merchants. It would be misleading to take the views of just one group - some people from each should be seen. This is why in particular it can be helpful to talk to people who are not your customers as well as those who are since your customers may not be representative of the market as a whole. It is necessary to cross check and compare information from different sources to make sure that your picture of the market is reliable.

CHECKLIST: MARKETS

1. WHAT DO CUSTOMERS WANT AND WHAT ARE THEY PREPARED TO PAY FOR? LIST THEIR NEEDS IN DETAIL

2. WHAT ARE THE SUBSTITUTES? HOW CLOSE ARE THEY?

3. HOW SENSITIVE ARE CUSTOMERS TO CHANGES IN PRICES?

4. WHERE DO CUSTOMERS WANT TO BUY?

5. WHEN DO CUSTOMERS WANT TO BUY?

6. ARE ALL CUSTOMERS' NEEDS THE SAME?

7. HOW IS THE MARKET GOING TO CHANGE?

8. WHAT ARE THE MAIN INFLUENCES AFFECTING SUPPLIES AND COMPETITION?

9. HOW ARE SUPPLIES GOING TO CHANGE?

10. WHO ARE YOUR COMPETITORS?

11. HOW STRONG IS COMPETITION?

CHECKLIST: MARKET RESEARCH

1. WHAT INFORMATION IS NEEDED?

2. HOW ACCURATE DOES THE INFORMATION HAVE TO BE?

3. ARE THE CHEAPEST SOURCES OF INFORMATION BEING CHECKED FIRST?

4. HAVE THE COSTS OF THE INFORMATION BEEN COMPARED WITH ITS USEFULNESS?

5. IS CARE BEING TAKEN TO ENSURE THAT BIAS IS AS SMALL AS POSSIBLE?

3 CHOOSING PRODUCTS AND MARKETS

3.1 Choices

The most important marketing decisions are about the choice of markets and the types and forms of fish with which they should be supplied. All other marketing decisions revolve around these issues.

These decisions have to be made when the farm is first started and they have to be re-examined periodically, especially when it is known that conditions have changed or are expected to change in the future.

3.2 Target Markets And Choice Of The Species

Target markets are the groups of final consumers you want to supply. Choices of species and choice of target markets are interrelated because some species will be most suited to the needs of particular markets. Before decision taking, four factors should be investigated: the market opportunity, the strength of competition, the capabilities of the fish farm, and the profit likely to be made:

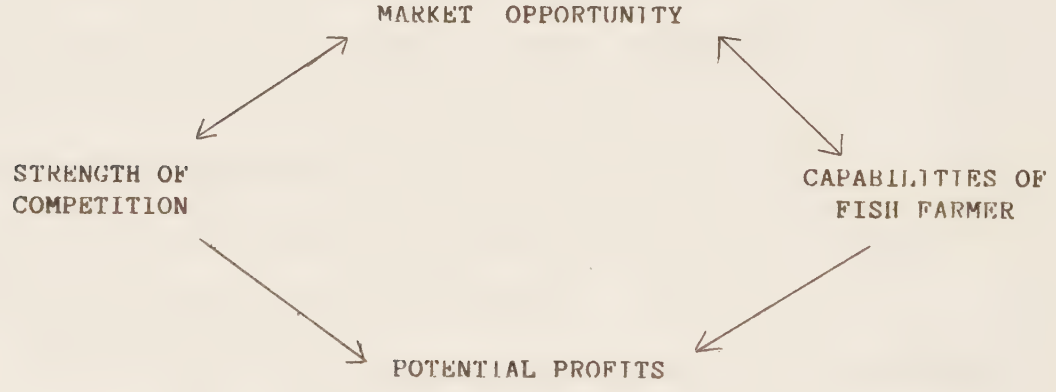


Figure 3.1 Markets and Competition

3.2.1 Market opportunities and the strength of competition

The checklists in chapter two can be used to describe and measure the market to build up a picture of what the market needs, how large it is and how it is expected to change in the future. Markets which are expected to grow are attractive. Markets which are stable and not subject to violent and unexpected changes (for instance due to big variations in landings of wild fish) can also offer opportunities because this means that the risk to the

fish farmer is smaller.

These opportunities can, however, only be properly assessed if they are related to the strength of competition. For instance, growing markets which are over-supplied can be less attractive than stable markets which are under-supplied.

Analysis of the stages in the life cycle of the product in the market can help here. Sales of a product - such as a type of fish - go through stages over their life: an introduction period when sales grow slowly, a period of more rapid growth and then a period when sales level off. Sometimes there is a final decline stage when sales start to fall because customers are switching to other newer products. Most native fish would be in the maturity stage because they have been available for a long time, but species newly introduced or made widely available for the first time may be in earlier stages.

When a new type of fish is introduced, it takes time for people to find out about it and be persuaded to buy. Once awareness has grown, sales start to grow more rapidly as people try the product for the first time and start to buy more regularly. When there are no new customers left to try the product the growth of sales starts to slow down. At this stage the only way in which sales can grow further is if they can be extended into new markets, or if there are changes in the environment helping to increase demand (however this is less likely if people's purchases per head are already high).

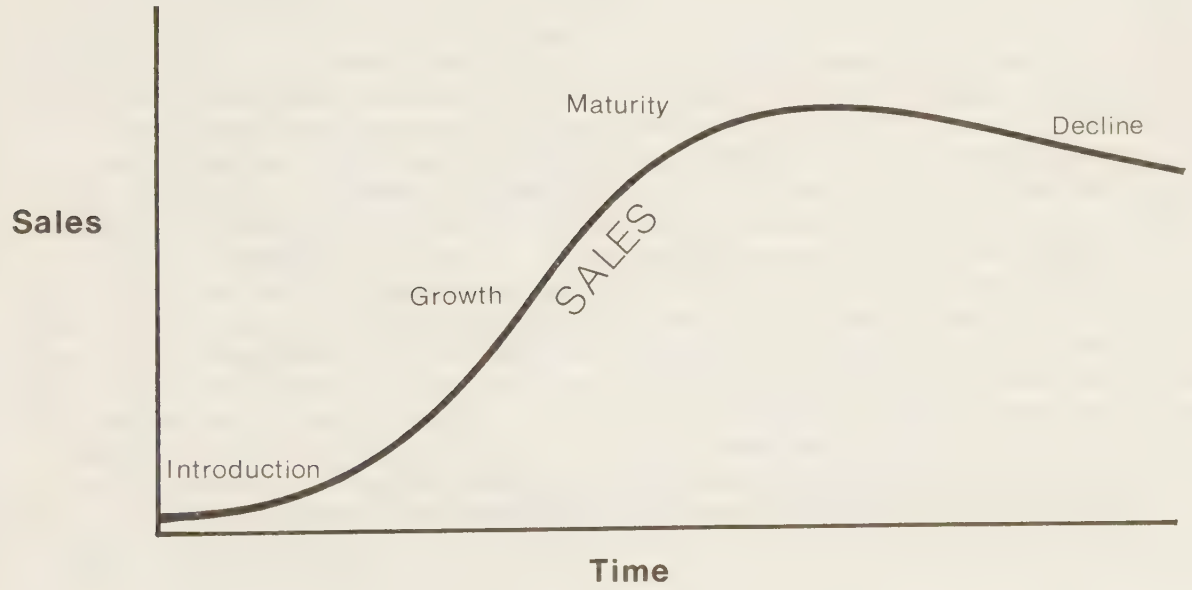


Figure 3.2 The Product Life Cycle

The importance of the product life cycle lies in what is likely to be happening to competition at the same time. At the beginning of the product's life, there is likely to be very little competition but as demand grows this

changes as more farmers see the new opportunity and start to culture the species. This may nevertheless be a good time for farmers because demand is still growing which means that everyone can sell their crop at good prices. If production stops expanding when the market stops growing, all should be well, but if farms continue to expand, farmers will be in the depressed situation described in the previous chapter with falling prices and profits.

There is always a danger that this will happen in aquaculture. People are always interested in new business opportunities and it is very easy both to over-estimate how much customers will buy and to under-estimate the number of other aquaculturists interested in supplying the market. There is, by contrast, often a natural check in fisheries because the wild stocks are not always available to go on increasing output. The balance between fishing and farming can also cause problems. Species can seem very attractive to culture because they are only available from the wild in small quantities and sell at very high prices. However, the market which is really interested in this fish can be quite small and if the fish are grown in large quantities prices can drop dramatically because there is no widespread demand.

It is wise therefore to select markets which are not expected to be oversupplied, especially if this is because the number of suitable sites for ponds is limited. It is wise to avoid markets and species where very rapid increases in supplies are taking place and prices are falling as a result. It can be profitable to be involved in the early stages with a new product when competition is limited, but if it is an unfamiliar species which may not be widely acceptable, expansion should be slow and cautious.

3.2.2 Capabilities, resources and experience

The next link in the chain is the capability of the fish farm. It is not enough to find a market opportunity: it has also to be the right opportunity for you. To make profits and survive when there is competition from other fish farmers means offering as good a product as everyone else at a price at or below them. This means running the fish farm efficiently but it means in the first place selecting species you can grow well - as well and efficiently as anyone else. In other words, market opportunities should be chosen which allow the fish farmer to exploit his strengths or the things that he is good at and avoid areas where he is weak. Physical conditions for growing are very important here. There are often big variations in conditions at different sites - for instance, variations in the quality of the water, variations in availability of water, variations in temperature. If a site is at a disadvantage compared with others growing the same fish and selling to the same markets, it will have higher costs and will find it more difficult to make money. Experience of those running the farm matters too. It is a mistake to go into the culture of a species which is difficult to grow or to go into processing if you do not have or cannot get the experience needed to succeed, however good the market opportunity. By contrast, if you do have particular skills with one species, these skills will enable you to compete very effectively with other farmers.

3.2.3 Capabilities and target markets

Similar issues affect the choice of markets. For instance, a small family farm could be most suited to supplying local customers either directly from the farm or via local market stalls because it can supply a cheap product which is what these customers want. It might avoid supplying processors or

exporters because it cannot meet a demand for more standardised consistent fish. On the other hand, a large more capital intensive unit might not be able to supply as cheaply as the family unit but it can meet the need for consistency. It would make sense for this unit to supply the processors. A farmer with a number of ponds and a lot of fish might have to look to bigger and more distant markets to take all his fish. A small farmer may be able to sell all his fish to people who live close to the farm.

3.3 Checklists And Profits

The checklist in Figure 3.3 below can be used as a basis for discussing decisions about markets and products:

Figure 3.3 Checklist: Markets and Products

	QUESTION	RATING (tick)
1.	The market	
	Is the market growing?	Yes/No
	Is the market stable?	Yes/No
	Will the market last a long time?	Yes/No
	Is the demand non-seasonal?	Yes/No
	Can you make demand non-seasonal?	Yes/No
	Is there a demand for fresh fish when wild fish are not available?	Yes/No
	Is the market large?	Yes/No
	Can the market be extended?	Yes/No
2.	Competition	
	Is the market under-supplied?	Yes/No
	Does the species meet a unique demand?	Yes/No
	Is entry difficult for other fish farmers?	Yes/No
	Is demand expected to grow faster than supply?	Yes/No
	Will the impact of your own production on prices be small?	Yes/No
	Are the sites available to other farmers to expand production limited?	Yes/No
	Are the supplies of wild fish limited?	Yes/No
3.	Capabilities	
	Do you have the raw materials, people and facilities to supply this market?	Yes/No
	Do you have the technical and management skills needed?	Yes/No
	Can you get the product to the markets in the condition needed by customers?	Yes/No
	Can you offer any services needed?	Yes/No
	Are your costs as low as your competitors'?	Yes/No
	Can you produce fish of the right weight, size and quality?	Yes/No
	Can you produce the fish when they are needed?	Yes/No
	Do you have any unique advantages over your competitors in supplying this target market?	Yes/No

If there are a large number of "no" answers to these questions, then it is not an opportunity to be used, especially if there is no way of overcoming disadvantages.

Checklists like this can be used as a way of ruling out ideas at an early stage so that too much effort is not spent on them. If ideas still look good after going through the checklist, the next stage is to make some estimates of the profit to be made to see if the opportunity looks worthwhile. This means estimating the amounts likely to be sold and the prices at which they will be sold and comparing this flow of money with costs. The risks involved will also have to be discussed and compared with profits. If the risks are high, the expected profit may have to be very high to justify the venture. If the risks are low, the fish farmer may be satisfied with lower profits because they are more certain. The next chapter which discusses fish farm economics can help here.

3.4 Processing

3.4.1 Processing choices

So far we have been discussing choices of species and target markets. Another choice which faces the fish farmer is whether all, a part or none of the fish should be processed.

3.4.2 The advantages of freshness

There are a number of situations where serious consideration should be given to selling processed rather than fresh fish. Where there are transport and handling problems caused by distances from markets, processing may be necessary to preserve the fish. If output is unavoidably heavily seasonal, processing and storage may be a way of preventing gluts which would seriously depress prices. Processing can create different products and provide opportunities to extend markets. By making it possible to deliver to more distant markets, it avoids over-loading local markets and selling at very low prices. Nevertheless, in most countries, given a choice, people prefer fresh rather than processed fish. Normally, therefore, where possible, selling at least part of the fish in fresh form will be the first choice and decisions to process fish should be taken very carefully.

3.4.3 Salted and dried fish

Most of the farmed finfish such as mullets, carps, breams, tilapias and catfish can be dried. Fish are salted by being covered in dry salt or soaked in a brine (salt and water) solution. The liquid which is formed is either drained off and the fish are dried or the fish are sold in the brine (pickled). Salting does not need very much equipment. Sharp knives for splitting the fish, working tables, containers and salt are all that is needed.

Figure 3.4 Selling Fresh Fish

Because it is simple and cheap, drying is suitable when the target market is poorer people and customers cannot be reached with fresh fish. Prices for dried, salted fish are typically not high compared with prices for fresh fish. Fishermen often also sell dried fish and competition from them can be considerable, helping to keep prices down.

Figure 3.5 Drying Fish

3.4.4 Smoked fish

Fish are smoked over a smouldering fire so that the heat of the fire dries the fish and the flavour from the smoke enters the flesh. Fish, depending on market preferences, are smoked whole, gutted, split or filleted and again depending on preferences, they can be salted before smoking.

Cold smoked fish, i.e. fish smoked at below 29°C, are popular in cool climates. The smoked fish sells at high prices, adding value to the fish, but it does not lengthen the life of the product compared with fresh fish, while needing strict quality control, strict attention to hygiene and storage at chill or frozen temperatures. It is not suitable for developing countries which may not have the facilities for handling the product. In tropical countries smoking is usually done at much higher temperatures (65°C to 120°C) to give a longer life for the fish.

Smoked fish are particularly popular in African countries and providing that care is taken, it is a good quality product which can be produced fairly inexpensively. When choosing whether to smoke fish, similar points should be noted as for drying fish.

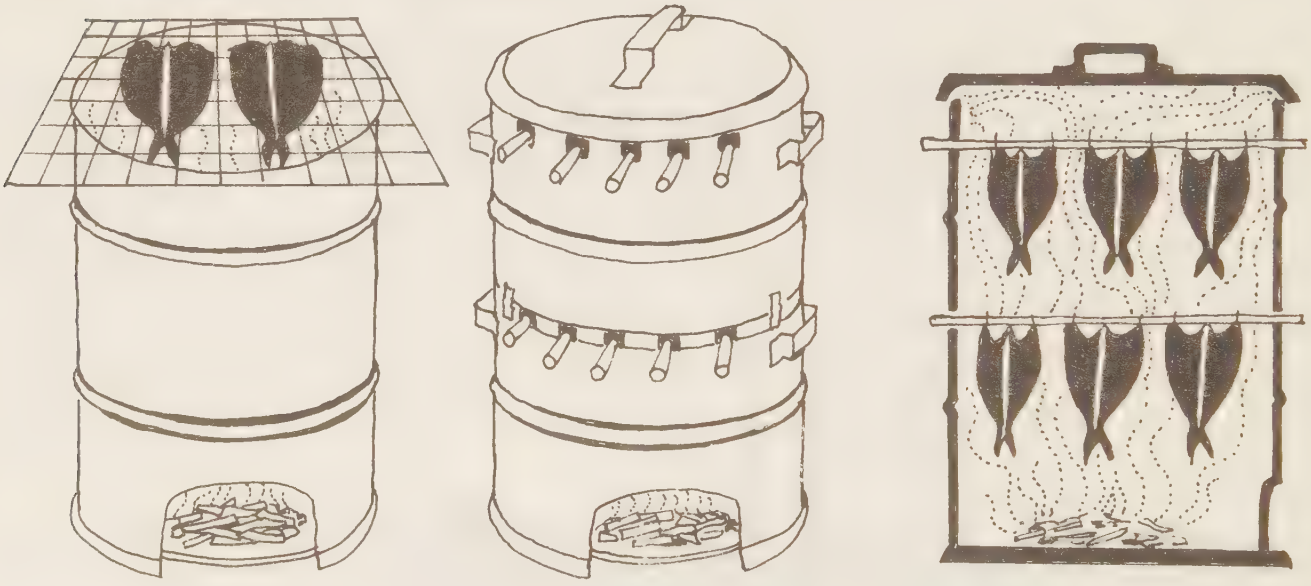


Figure 3.6 Fish Smoking

3.4.5 Frozen fish

Fish are frozen to slow down spoilage so that when they are later thawed they are almost the same as fresh fish. Equipment for freezing is

expensive and refrigerated transport is needed to get the product to customers. It is therefore only worth freezing fish when it is not otherwise possible to get the fish to the target market in good condition - usually because of remoteness from the market or to iron out seasonal fluctuations. Export markets and large towns are often possible target markets for frozen fish but this will depend on the other fresh fish available to them. Do not assume that frozen fish always command high prices. Because most people prefer fresh fish, fresh fish prices are sometimes higher than frozen fish prices, despite the extra costs of freezing fish. Sometimes also freezing is used as a way of storing surplus fish and this fish is often sold at low prices.

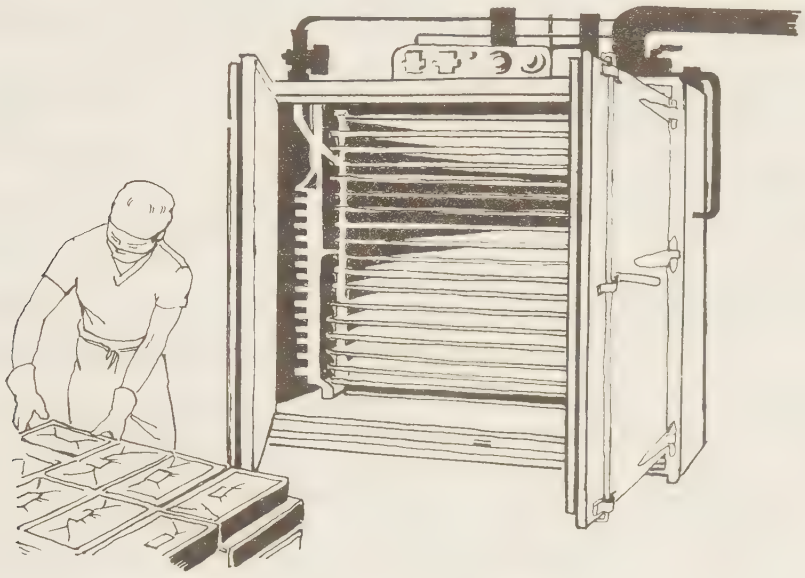


Figure 3.7 Fish Freezers

There are a wide range of frozen fish products, ranging from frozen gutted fish to prepared fish dishes in expensive polythene and cardboard packaging. Generally speaking, the more complex the product, the higher its price, but also the more equipment that will be needed and the greater the special knowledge needed to prepare the products properly.

3.4.6 Canning

It is very unlikely to be sensible for a fish farmer to go into fish canning. Canning plants require large amounts of money for equipment and to be profitable they need a large and regular supply of fish at low cost. Many white fish are not suitable for canning. But even if the fish are suitable for canning and there are good markets for the canned product (shrimps and prawns), it is likely to be more sensible to sell the fish to a canner who is handling fish from many farmers and fishermen.

3.4.7 Processing decisions

Taking decisions to process fish involves looking first at the same three groups of questions in the checklist in Figure 3.3. Decisions should be based on:

- the market opportunity
- how competitive the market is

- the capabilities of the fish farmer
- expected profits

But some other questions can be added to the checklist:

Can we process fish as cheaply as processors who specialise in doing just this? Or would it be better to sell fish to them so that they do the processing?	Yes/No
Can we reach and do business with target markets as easily as specialist processors?	Yes/No
Do we have the back-up faciities such as transport and storage to supply markets?	Yes/No
Taking everything into consideration, is this a better option than selling the fish fresh?	Yes/No
Is this a good way of selling to new markets and developing the fish farm?	Yes/No

It is necessary to remember that the skills required to process fish especially for freezing and particularly when complicated packaging is needed are not the same as the skills needed to run a fish farm successfully. If the fish farm has been successful, it makes sense to look for new markets and more profits. Processing may provide this opportunity but this is not automatically the case so processing decisions must be taken very carefully.

3.4.8 References and further reading

Details of processing methods, and technologies can be obtained from the following sources:

Freezing in fisheries
FAO Fisheries Technical Paper No. 167.

Equipment and methods for improved smoking and drying of fish in the tropics
FAO Fisheries Technical Paper No. 104

The production of dried fish
FAO Fisheries Technical Paper No. 160

An introduction to fish handling and processing
Publication G.143, Tropical Research and Development Institute (U.K.).

The small-scale processing of fish
ILO/FAO

More references are given in chapter 8.

3.5 The Next Step

The decisions taken on these matters form the base of the marketing policy of the fish farm. After they are taken, there should be a clear and precise idea of the target market to be served and the product which is to be offered to customers. All the other policies for price, distribution, promotion and selling can then be built around this.

CHECKLIST

1. HAVE YOU LOOKED CAREFULLY AT ALL MARKET OPPORTUNITIES?

2. HAVE YOU LOOKED AT COMPETITORS?

3. HAVE YOU COMPARED YOUR CAPABILITIES WITH THOSE OF YOUR COMPETITORS?

4. HAVE YOU ESTIMATED HOW MUCH PROFIT YOU WILL MAKE FROM DIFFERENT OPPORTUNITIES?

5. FOR THE OPTION SELECTED, DO YOU HAVE A CLEAR AND PRECISE IDEA OF THE TARGET MARKET AND THE PRODUCT TO BE OFFERED?

---

4 AQUACULTURE ECONOMICS FOR MARKETING DECISIONS

4.1 Economics And Marketing

Every marketing decision is a choice between different ways of using the resources of the fish farm and, when making these choices, the costs of each alternative have to be compared with the money brought in. Without this, it is difficult to know whether the right decisions are being taken. Aquaculture economics is the study of these costs and benefits and this chapter gives guidelines as to how to use economic information in decision-taking.

4.2 How Profits Are Earned

The total money which the farmer receives from selling fish is called SALES INCOME or GROSS INCOME. It is the price of each fish multiplied by the number of fish sold. If the COSTS of producing and marketing the fish are taken away from sales income, what remains is NET INCOME or PROFIT. This is what is left over for the fish farmer to support his family and to use to improve his standard of living:

NUMBER OF FISH SOLD	times	PRICE OF FISH	minus	COSTS OF PRODUCING AND MARKETING	=	NET INCOME or PROFIT

Profit can change because of changes in prices, sales or costs. The fish farmer tries to select the best combination of sales, prices and costs to make as much profit as possible.

4.3 Costs

4.3.1 Types of costs

Before looking at ways of trying to change profits, it is useful to see how sales income, costs and profit are calculated. Costs are examined first. Fish farm costs can be divided into two types:

Fixed costs: costs which do not vary even if the number of fish sold varies

Variable costs: costs which change in line with changes in the number of fish produced and sold.

4.3.2 Fixed costs

When trying to estimate the costs of running a fish farm for a year,

some costs have to be met however much or little fish is produced. These costs are:

- costs of insurance
- costs of interest on loans for money borrowed to build ponds and buy equipment
- taxes for use of site
- rent for use of site
- costs of building the farm
- costs of van
- costs of boat
- costs of equipment

Even if it is a poor growing year, the pond and equipment still have to be paid for. If a van is needed to take fish to markets, it will be needed even if smaller quantities of fish are produced than usual. Banks will still expect to be paid interest for money that is borrowed from them.

Some of these costs are easy to calculate. For instance, insurance, interest and loans, taxes and rent will be paid each year or a number of times each year and all that is needed is to put down the total for each cost over the year. This has been done in Figure 4.1 for an imaginary fish farm called the "Kovo Fish Farm".

Other fixed costs are not quite so straightforward. These are the costs which occur in one year but give benefits to the fish farm over a number of years. The costs of building the farm, the van, the boat and some types of equipment are examples of these costs. If the fish farmer puts all these costs down for the year when they were paid, it might look as if the farm was unprofitable and that it was not worthwhile to carry on. The fish farmer, however, knows that this is not the case. This expensive year will be balanced by later years when costs are lower because the ponds, van, boat, etc., have already been paid for.

To deal with this problem, DEPRECIATION COSTS are put into annual costs. This is a way of spreading the costs of items with long lives over the whole of their lives. Depreciation costs are estimated by taking the costs of the item and dividing by the number of years that the item is expected to last. For instance, if the 5 ponds of the Kovo Fish Farm have cost $30,000 to build and they are expected to last for 20 years, the depreciation cost per year is:

$$\frac{\$30{,}000}{20 \text{ years}} = \$1500 \text{ per year}$$

This is the amount which has been put into annual costs in figure 4.1. The van and boat are each expected to last 5 years so the depreciation costs are:

Van $\frac{\$1500}{5 \text{ years}}$ = $300 per year

Boat $\frac{\$\ 500}{5 \text{ years}}$ = $100 per year

This gives a truer picture for each year of what it costs to run the fish farm. Costing in this way is also done for another reason. If the fish farmer sets aside these costs every year and puts them in a bank, he will have enough money to replace the item when it wears out. If this was not done, it might be difficult to keep the farm going when items like the boat or van are worn out and new ones are needed.

Some marketing costs have been included as fixed costs for the Kovo Fish Farm. These are, in this example, the costs of making regular trips to customers in the urban fish markets. These trips are needed to keep good relations with customers and take place whatever the actual amount of fish for sale in any one year. Not all marketing costs are fixed since some costs will increase as more fish are sold. Examples of these costs are the costs of moving fish to customers and the costs of negotiating deals with customers. These would be put under variable costs.

Figure 4.1 Kovo Fish Farm 1985:
Sales Income, Costs and Profits

5 hectares of ponds producing and selling 15 tonnes of fish per year

	$	$	$
SALES INCOME			
15 tonnes of fish sold at $700 per tonne =			10500
COSTS			
FIXED COSTS			
insurance	100		
taxes	100		
interest on loans	700		
depreciation on ponds	1500		
depreciation on van	300		
depreciation on boat	100		
marketing costs	200		
SUB TOTAL	3000		
VARIABLE COSTS			
fry	250		
feed	2300		
fertilizer	200		
fuel	350		
workers	1200		
ice, packaging	100		
maintenance	100		
SUB TOTAL	4500		
TOTAL COSTS		7500	
PROFIT (SALES INCOME - COSTS)			3000

4.3.3 Variable costs

The other costs of the Kovo Fish Farm are variable costs. These

change with the number of fish which it is decided to grow. The more fish produced, the more must be spent on food and fertilizer. The more fish sold, the more ice and packaging materials needed and the more workers needed to look after the fish and maintain the ponds.

If the Kovo Fish Farm sells only one tonne of fish, variable costs will be $300. Two tonnes of fish will have variable costs of $300 times 2 or $600. In the example, Kovo sold 15 tonnes of fish in 1985 so the variable cost was $4500 ($300 times 15).

4.4 Sales Income, Costs And Profits

4.4.1 Breakeven points

Figure 4.2 shows how the costs of Kovo Fish Farm rise as its output increases towards 15 tonnes.

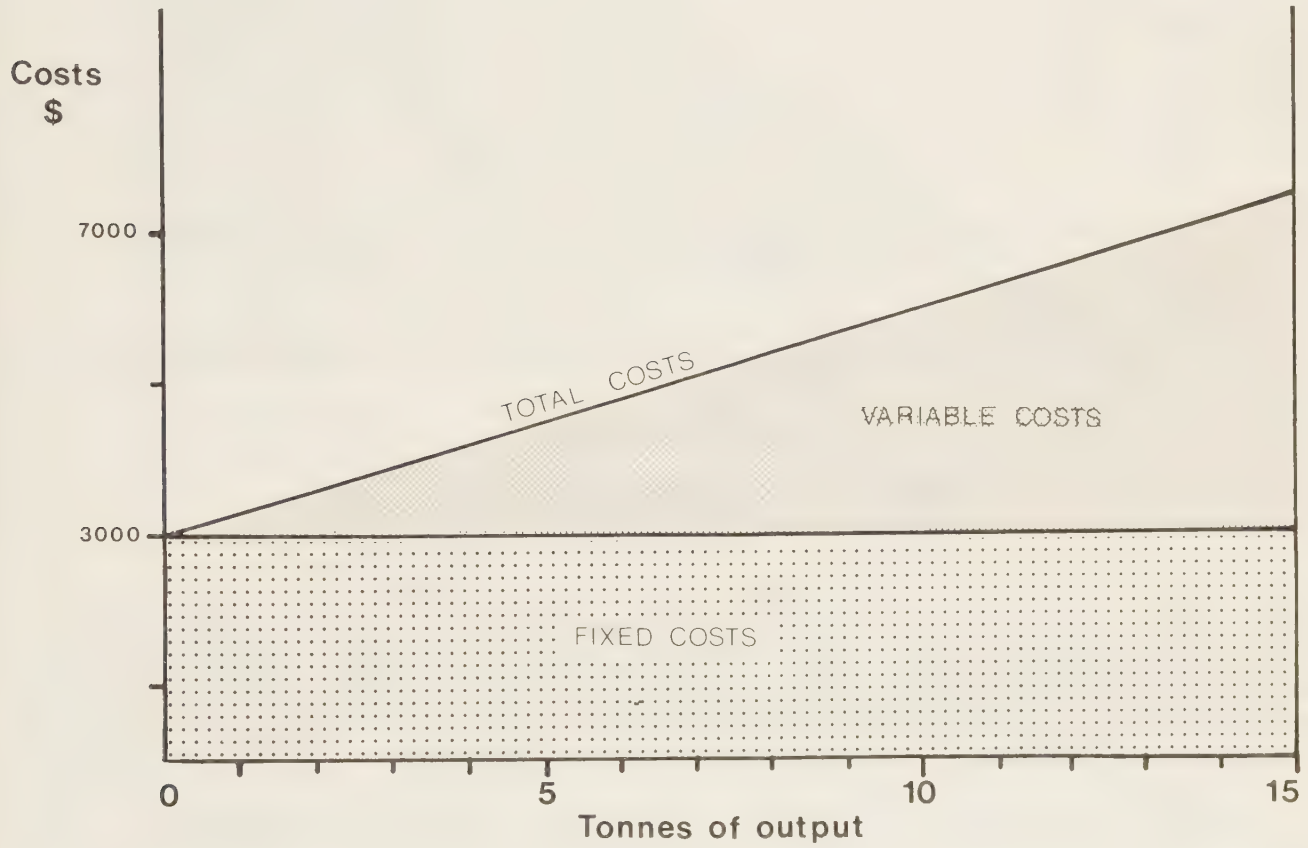


Figure 4.2 Fixed and Variable Costs

Even if only one tonne is sold, the fixed costs of the farm are $3000 but the ponds, boat, van, insurance, etc., which these costs cover are able to produce much larger quantities of fish. Thus fixed costs are still $3000 as output increases. Variable costs by contrast only start when the ponds are stocked and they go on increasing the more fish are grown. Putting the fixed and the variable costs together gives TOTAL COSTS and the diagram shows that total costs for Kovo grow from $3000 at zero output to $7500 when 15 tonnes are produced.

Figure 4.3 is a similar chart to show how sales income grows as more fish are sold. It is calculated by multiplying each level of output by the price per tonne of fish sold.

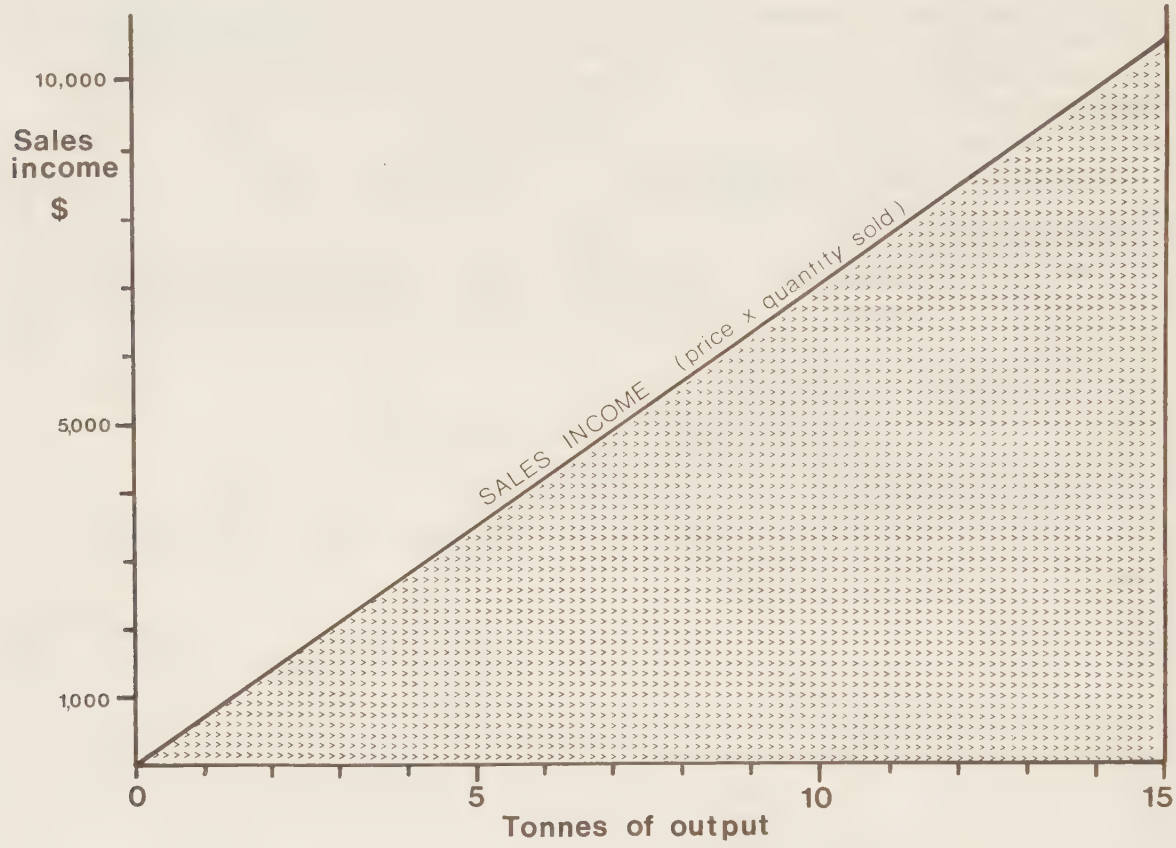


Figure 4.3 Sales Income and Output

Kovo Fish Farm sells its fish in the wholesale market of a large city. It is one of a large number of different fish suppliers and the amount it supplies does not affect prices. It is paid $700 per tonne of fish whether it sells one tonne or 15 tonnes, so sales income grows steadily as more is produced. (Prices do not always behave like this. Sometimes prices fall as the fish farmer sells more fish - see section 4.5.)

Costs can be combined with sales income to estimate the BREAKEVEN POINT. This is the level of sales where SALES INCOME is just equal to COSTS. This shows the fish farmer the minimum amount of fish he must sell to cover costs. Below this point the farm makes a loss. Only at outputs greater than this point does it start to make profits.

Figure 4.4 puts sales income and costs together. The breakeven point is where SALES INCOME is equal to TOTAL COSTS. Here Kovo sells 7.5 tonnes per year. Below this output, costs are greater than sales income and only after this point does the farm start to make profits. The breakeven point can also be estimated by using the formula:

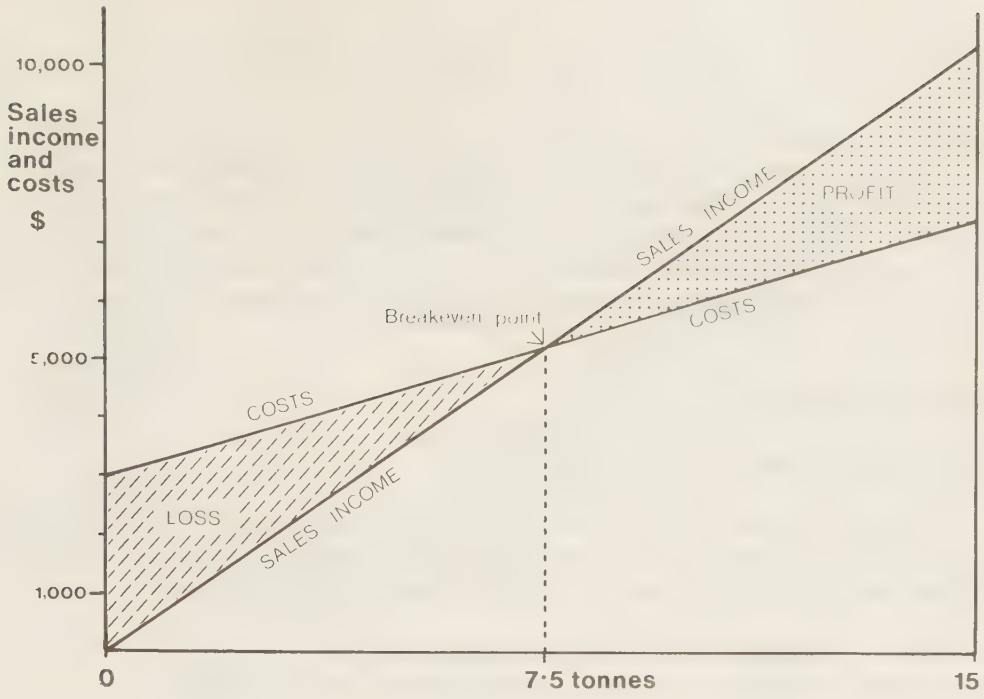


Figure 4.4 Breakeven Points

$$\text{BREAKEVEN OUTPUT} = \frac{\text{FIXED COSTS}}{\text{PRICE - VARIABLE COSTS}} \text{ PER UNIT}$$

For Kovo this gives:

$$\text{BREAKEVEN OUTPUT} = \frac{\$3000}{\$700 \text{ PER TONNE} - \$300 \text{ PER TONNE}}$$

$$= 7.5 \text{ TONNES.}$$

Estimating breakeven point is useful because it shows how likely it is that the farm will survive and how much margin there is for unexpected problems. If the breakeven point is close to the maximum amount of fish that the ponds can produce, then there will quickly be problems if output is less than expected. Kovo Fish Farm is fortunate because at expected prices it can cover costs at an output which is only half of what the ponds are actually able to produce. If, however, a fish farm cannot cover costs even at high levels of output, it must look for some way of improving the situation. Perhaps it would be possible to use fewer workers, or to improve husbandry to become more efficient or increase output. Perhaps by changing the species produced, higher prices and therefore higher sales income could be achieved. This is discussed in section 4.5. If nothing is done, the fish farm will make a loss and will probably have to close.

If the owner is running the fish farm himself and he supports his family from the profits, the costs do not include an allowance for his own income. Since he needs a minimum amount of money for this the owner may decide to add this amount to costs to give a more accurate picture of the minimum level of output at which it is possible to run the farm.

4.4.2 Profits

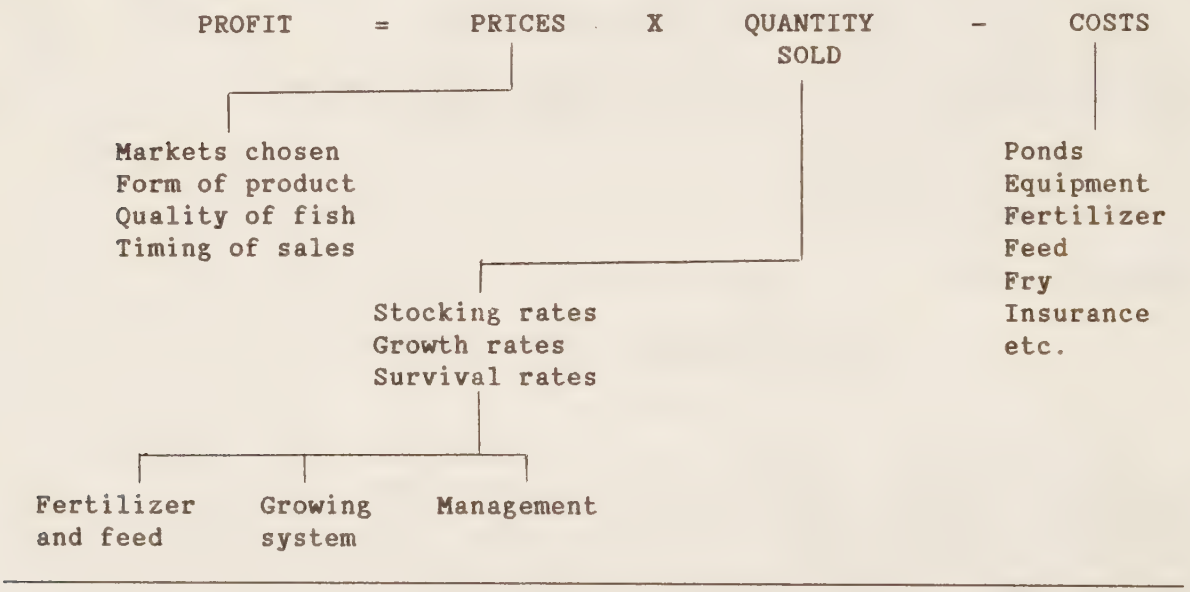
The diagram in figure 4.4 can be used to estimate profits. At any output above 7.5 tonnes, Kovo are covering their costs and starting to make profits. Profits are the difference between the sales income line and the shaded area of costs. For Kovo, profits increase until 15 tonnes are produced, which is also the largest quantity of fish that can be grown in the ponds. The best plan therefore for Kovo is to aim to produce and sell 15 tonnes of fish.

4.5 Selecting Alternatives

4.5.1 Ways of increasing profits

So far, the sales income, costs and profits of the Kovo Fish Farm have been examined, without considering whether there are ways of making more profit. Sales incomes and costs can be varied in many ways (figure 4.5).

Figure 4.5 Choices and Profits



Not only can profits be changed in different ways - by changing prices, cost or output but the changes are related to each other. For example, choosing new markets with higher prices may mean higher costs because of longer distances to markets. Changes in output change costs because the number of inputs needed increase.

4.5.2 Stocking rates

What would happen if Kovo tried to produce more than 15 tonnes? Kovo have considered this but if the ponds were stocked more heavily, the extra costs of feeding more fish would be large because the overcrowding would cause some fish to die and the remaining fish would not grow well. Costs would thus rise faster than sales income so that less profit would be made (see figure 4.6) than if production is kept at 15 tonnes.

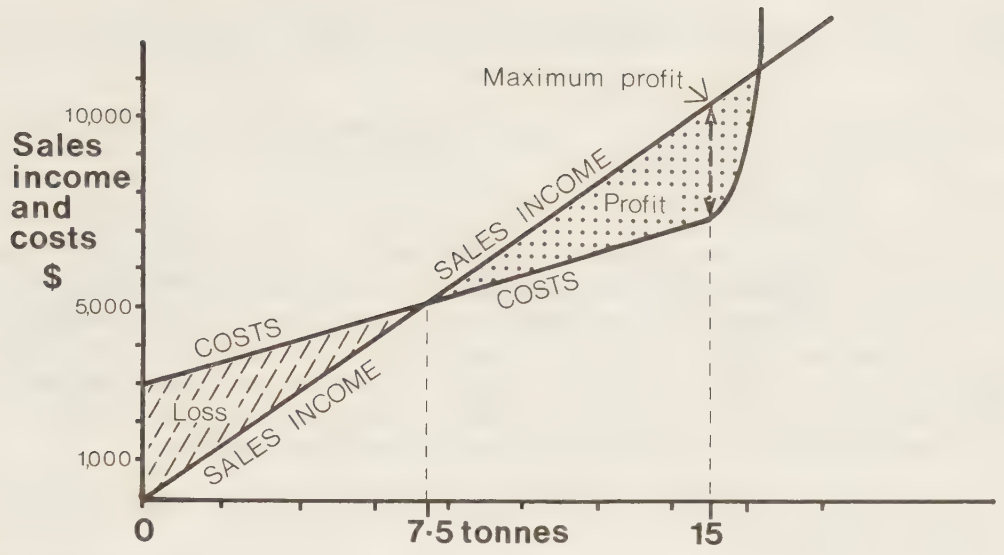


Figure 4.6 Overstocking and Profits

If overstocking damages the fish and reduces quality the picture may be worse than this. Kovo will get a price lower than $700 per tonne and will make even less money beyond 15 tonnes.

The best stocking rates depend on the species of fish and the method of farming and can only be discovered by trial and error. They also depend on the costs of feed and fertilizer and the costs of circulating water. If these costs are high, it may be more profitable not to use these items. Less fish will be produced but much more cheaply so that overall profit is greater. To find out answers for each farm, these benefits have to be compared with their costs.

4.5.3 Prices

Prices affect breakeven points and profit levels. If prices rise, the breakeven point will be reached at lower levels of sales and more profit will be made at higher levels of sales. If prices fall, the breakeven output will be higher and less profit will be made. Breakeven points and profits in fish farming are usually very sensitive to changing prices.

The break-even formula can be used to see the effect of a fall in price from $700 to $650 per tonne for Kovo Fish Farm

$$\text{BREAKEVEN POINT} = \frac{\$3000}{\$700-\$300} = 7.5 \text{ TONNES}$$

$$\text{BREAKEVEN POINT} = \frac{\$3000}{\$650-\$300} = 8.6 \text{ TONNES}$$

If price falls further to $600 per tonne, it will take even more sales to breakeven:

$$\text{BREAKEVEN POINT} = \frac{\$3000}{\$600-\$300} = 10 \text{ TONNES}$$

Often price changes are caused by events which the fish farmer cannot control because they are due to changing market conditions but sometimes a fish farmer can himself change prices because of the effect on the market of the change in his own output. This can happen when the change in output is a big proportion of total supplies to the market - usually when the market is a local one with few suppliers. This can change the amount of fish which it is profitable to grow. This can be seen in the following example.

Assume now that Kovo Fish Farm's sales do affect prices. As they sell more fish, prices fall as follows:

10 tonnes	$700 per tonne
12 tonnes	$650 per tonne
15 tonnes	$550 per tonne

This can be compared with the costs in figure 4.7. Remember that fixed costs are $3000 and the variable costs per tonne are $300:

Figure 4.7 Effect of Changing Prices for Larger Sales

OUTPUT	COSTS			SALES INCOME	PROFIT
	FIXED	VARIABLE	TOTAL		
10 tonnes	3000	3000	6000	7000	1000
12 tonnes	3000	3600	6600	7800	1200
15 tonnes	3000	4500	7500	8250	750

In this new situation it is more profitable for Kovo to supply 12 rather than 15 tonnes and to cut back production - unless of course it can find new markets elsewhere.

4.5.4 Changes in costs and prices

Sometimes changes in costs, prices and output can affect each other (see figure 4.8).

Figure 4.8 Zeno Fish Farm

Will it pay this small fish farmer to buy fertilizer to increase output from

two to three tonnes a year? The only markets are local ones and to sell three tonnes rather than two tonnes the price will have to fall from $1000 per tonne to $900 per tonne.

1. PROFIT FROM TWO TONNES WITHOUT FERTILIZER

	$	$
Sales Income $1000 x 2 tonnes		2000
Costs:		
Fixed Costs	1000	
Variable Costs ($200 per tonne x 2 tonnes)	400	
Total Costs	1400	
Profit		600

2. PROFIT FROM THREE TONNES WITH FERTILIZER

	$	$
Sales Income $900 x 3 tonnes		2700
Costs:		
Fixed Costs	1000	
Variable costs including fertilizer and extra labour for larger output ($450 x 3 tonnes)	1350	
Total Costs	2350	
Profit		350

In this example, because of the limited market, it is not profitable for Zeno to use fertilizer to increase output.

But if Zeno were to find that they could hire a van to take the extra tonne of fish to an inland market where the price is $1200 per tonne, it would be worthwhile for them to increase output:

Figure 4.9 Zeno's New Market

	$	$
Sales Income:		
Sales Income from existing market $1000 x 2 tonnes		2000
Sales Income from new market $1500 x 1 tonne		1500
Total Sales Income		3500
Costs		
Fixed Costs	1000	

Variable costs including fertilizer and extra labour for larger ouput ($450 x 3 tonnes)	1350	
Costs of hire of van and petrol	200	
Total Costs	2550	
Profit		950

The extra costs of more fertilizer and labour and of getting the fish to the new market are covered by the sales income for the extra fish.

There are many situations where a change affects both sales income and costs so that differences between the two have to be compared. Some of these are:

WATER QUALITY
The number of fish that can be stocked and their quality can be increased by filtering and pumping water. This is often expensive to do and the extra costs must be compared with benefits.

VACCINES
These can reduce diseases reducing losses and improving quality. The benefits should be compared with costs.

PROCESSING
It usually costs extra to process fish. If however the fish receive higher prices this may be worthwhile.

TYPES OF FISH FARM
Some types of fish farm - usually the large farms - cost a great deal to build and have high fixed costs. Smaller farms are often simpler and cost much less to build. The larger farm is likely to find it worthwhile to spend a lot of money on water systems and feed to get as much output as possible from the expensive farm. The smaller fish farmer who has less fixed costs to meet may not find it profitable to do this.

4.6 Accounting And Record Keeping

Examples of the types of forms useful for recording costs and sales incomes can be found in Chapter 11.

CHECKLIST

1. WHAT ARE THE FIXED COSTS OF YOUR OPERATION?

2. WHAT ARE VARIABLE COSTS?

3. WHAT IS BREAKEVEN OUTPUT AT PRESENT PRICES?

4. HOW CLOSE IS BREAKEVEN OUTPUT TO THE AMOUNT YOU WANT TQ PRODUCE?

5. HOW MUCH MARGIN DO YOU HAVE IF THINGS GO WRONG?

6. WHAT IS YOUR MOST PROFITABLE OUTPUT?

7. DOES YOUR OUTPUT AFFECT PRICES? HOW DOES THIS AFFECT THE AMOUNT TO BE PRODUCED?

8. ARE THERE WAYS IN WHICH YOU COULD MAKE MORE PROFIT THAN YOU DO AT PRESENT?

5 DISTRIBUTION

5.1 Distribution Channels And Their Importance

Some fish farmers are able to sell their production locally direct to households, but in many cases it is more profitable to sell not directly to households but to intermediaries. Intermediaries buy goods in order to resell them to others and they play a very important rôle in the successful marketing of fish. If they handle fish carefully, efficiently and provide the assortments that households want at prices that they can pay, this will reflect in the earnings of the fish farmer. If they handle fish badly and sell it in poor condition at high prices, this will undo all the marketing efforts of the fish farmer. Choosing the right distribution path therefore makes a major contribution to successful marketing.

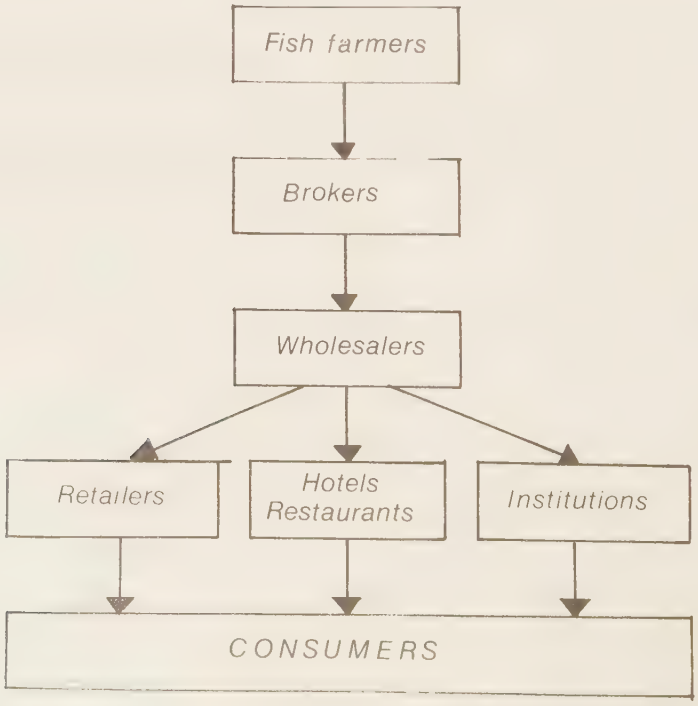
There are many different types of intermediaries. The most common are:

- retailers who sell fish directly to households from shops, stalls or vans
- caterers who buy fish to prepare and serve to their customers in restaurants, hotels and canteens
- wholesalers who buy fish to sell to people like retailers and caterers
- brokers who buy fish to sell to wholesalers.

For the fish farmer it is important to see and judge the functions which they perform and to judge how they can help his business.

5.2 What Does The Distribution Channel Do?

A distribution channel for fresh fish with four stages is shown in figure 5.1.



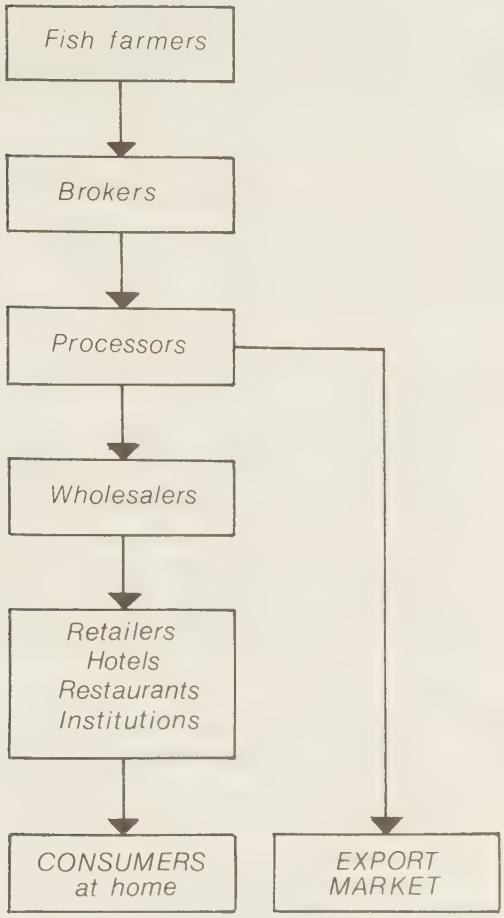


Figure 5.1 Distribution Channels

As the fish move along this channel, the price at each stage becomes higher.

Figure 5.2 Margins Added in the Distribution Channel: An Example

	$ per kilo of fish
Fish farmer's selling price to broker	1.00
(Broker's margin for his costs and profit)	(0.10)
Broker's selling price	1.10
(Wholesaler's margin)	(0.11)
Wholesaler's selling price	1.21
(Retailer's margin)	(0.40)
Retailer's selling price	1.61

Often fish farmers resent the way in which prices rise on the way to final consumers. Sometimes this resentment is justified because the channel is not working very well due to a lack of competition. In reality, however, in a large number of cases, the margins just reflect the value of the economic tasks carried out by each intermediary. These are listed in Figure 5.3.

Figure 5.3 The Tasks of Intermediaries

	TASK	DESCRIPTION
1.	SORTING FISH	To keep transport costs low, a producer can transport fish in large volumes to an intermediary who can divide the boxes up into the smaller quantities needed by his customers. Wholesalers divide large loads into the smaller volumes needed by retailers while retailers divide up boxes of fish to sell households even smaller quantities of fish.
2.	CUTTING DOWN THE NUMBER OF EXCHANGES	Households can get supplies of many different types of fish from the same outlets and they do not have to travel to each farmer or fisherman to get the variety of supplies they need.
3.	MARKETING	By learning the buying habits and needs of customers, intermediaries save fish farmers the time and costs of getting this information for themselves.
4.	COLLECTING FISH	Sometimes brokers and wholesalers collect fish to save fish farmers from having to organise their own transport system.
5.	SUPPLYING CREDIT	Wholesalers may provide loans to their customers or to their suppliers.

Business outside the channel can also be used to make the channel work more smoothly - for instance banks can provide credit and transport companies can transport fish, rather than the channel providing all its own services. Use of outsiders like these will depend on which are the cheapest ways of meeting the overall needs of the channel.

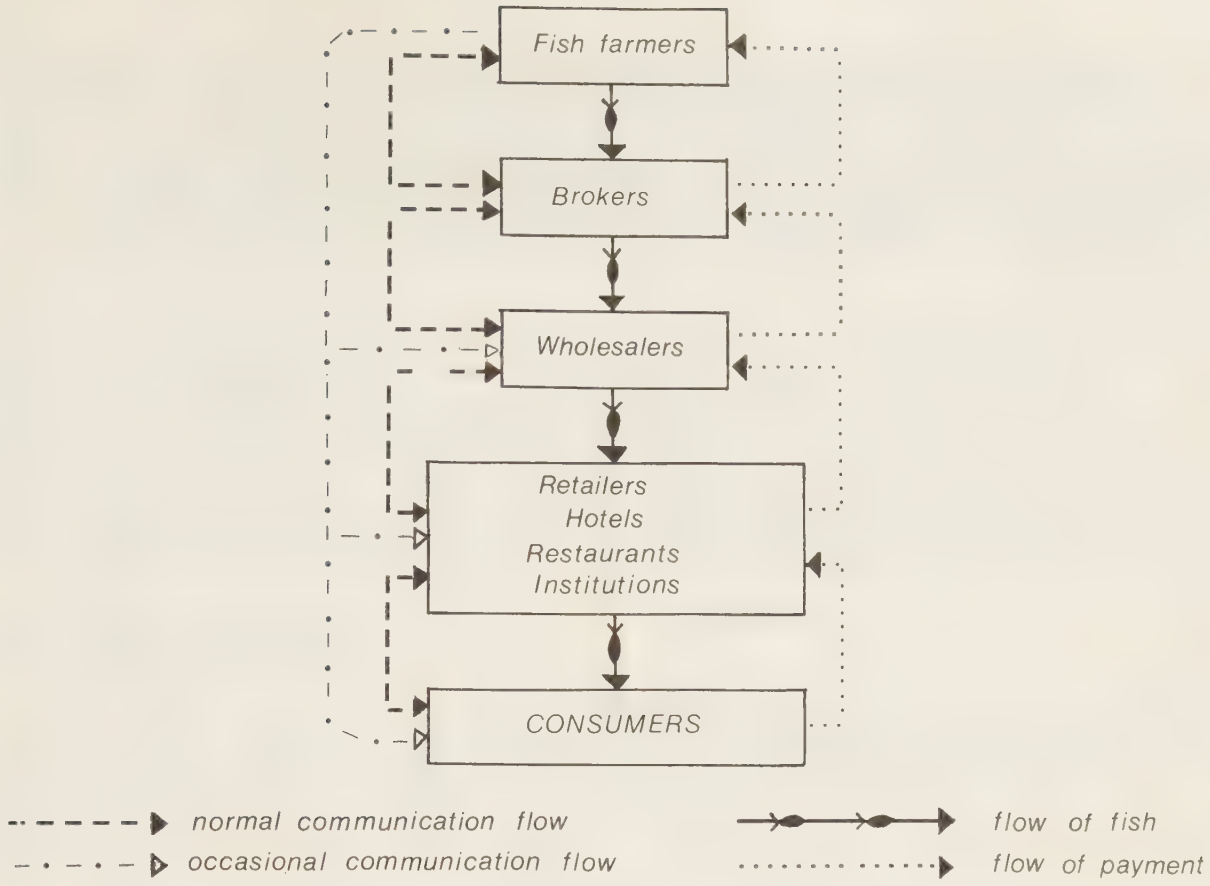


Figure 5.4 Key Channel Flows

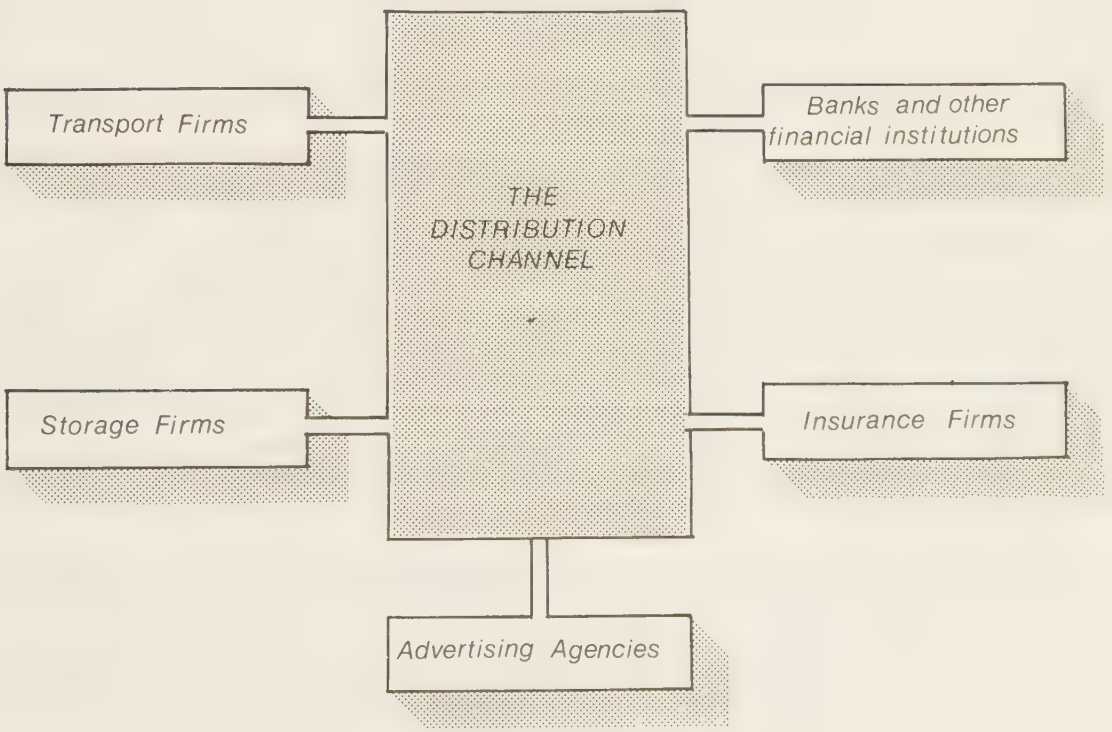


Figure 5.5 Services for Members of the Channel

5.3 The Length Of Channels And Wholesale Markets

Fish distribution channels do not always have the same number of intermediaries. Sometimes stages are bypassed or added on (see figure 5.6). In addition, there are often different distribution systems which might be used, each catering for different markets and customers.

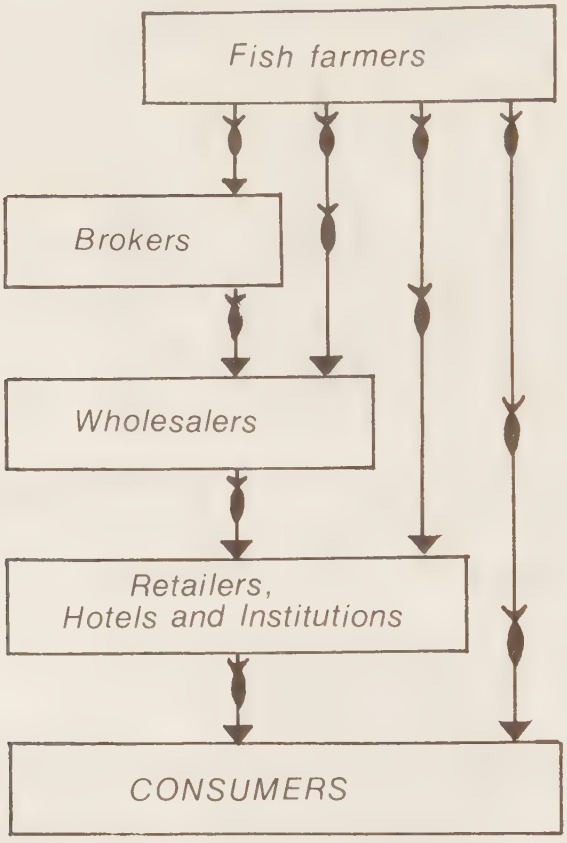


Figure 5.6 By-passing Stages on the way to Consumers

How distribution is organised will depend on the type of markets, the amount of fish being sold, and the organisation of farmers and fishermen. The system is also affected by how rich a country is. Often in poor countries little fresh fish and other fresh food is eaten, so that distribution channels are not very competitive and involve many different stages. In richer countries distribution is more organised and there tend to be fewer stages in the distribution channel.

There are usually differences between the distribution of fresh fish and the distribution of frozen fish. In many countries wholesale markets are used for fresh fish. These markets operate mainly in large towns and all the major fresh fish wholesalers will have trading stands in the market. Fresh fish from fishermen and fish farmers are delivered to the wholesalers while retailers and caterers come to the wholesale market to obtain supplies. Wholesale markets provide a way to balance supplies with demand on a day to day basis. This is necessary because most fish come from wild fisheries and landings fluctuate a great deal in quality and quantity. When wholesalers

group together in the market they can more easily learn about trading conditions, as can the suppliers who come to the markets to sell their fish. Customers can compare the prices of different wholesalers more easily. This means that if supplies are short, this will be quickly shown through rising prices and when supplies are plentiful, prices will fall. In well organised wholesale markets it is easy to get information about prices and the margins added on to prices are not excessive because the wholesalers are competing vigorously with each other.

Frozen fish usually by-pass such wholesale markets. Frozen fish can be stored for long periods so there is no need to match demand and supply daily. It is difficult to assess fish quality when fish are frozen so comparing frozen fish from different sources in a market in any case would not be helpful. It would not improve the quality of the fish, which might thaw while this was going on. For these reasons processors sometimes combine processing with wholesaling and operate their own transport systems to deliver frozen fish directly to retailers and caterers.

5.4 Choosing Channels

5.4.1 Assessing options

There are three stages in the process of deciding which distribution paths to use. The first is to list all the different routes which could be taken to reach the final consumer. The second is to assess how well each alternative fits with the overall marketing plan of the fish farmer and the third is to compare the profits which each alternative is expected to make.

The questions to be asked about each alternative are listed in figure 5.7.

Figure 5.7 Assessing Options

MARKETS	Where do households buy fish? Do they want to buy an assortment of fish and how does this affect their choices of sources of supply? Would they buy from alternative channels if they existed? What qualities of fish are they buying at present? How is this affected by the existing distribution system?
INTERMEDIARIES	What intermediaries could you use? Are they performing an efficient service for customers and suppliers at present? Could this be improved? How powerful are wholesalers and retailers? Do you have to sell through them because of their power?
OUTSIDE SERVICES	What outside services are available (e.g. transport, finance)? Does this affect the number of choices?
THE FISH FARMER	What is the most suitable system given: - your capabilities - the amount of fish you have to sell - the timing of your sales?

5.4.2 Estimating profits

By estimating the prices that would be received by selling at different stages in the channel and comparing them with how much it would cost to sell to each stage, the most profitable route can be discovered. To do this, the contribution which each option makes to the overall profit of the farm is calculated:

SALES INCOME (PRICE X QUANTITY) — COST OF DISTRIBUTION = CONTRIBUTION TOWARDS COVERING PRODUCTION COSTS AND TOWARDS PROFIT

Allow for different prices at different stages in the channel

Allow for price differences if quality changes with distribution method used

Include: OPERATING COSTS
transport
ice
boxes
labour costs for distribution
DEPRECIATION COSTS
for items bought for each distribution system, e.g. additional transport and storage

A simple example is shown in figure 5.8.

Figure 5.8 Comparing Two Distribution Routes

Badango Fish Farm must choose between buying a van to take fish to wholesalers who operate in a city 100 kilometres away or selling to a broker who sells to the same wholesalers but comes to fish farms to collect fish. Estimates are made for one year's operations by either route.

1. SELLING TO THE BROKER		2. SELLING TO RETAILERS	
Selling price to broker	= $750 per tonne	Selling price to retailer	= $1000
Quantity sold	= 15 tonnes	Quantity sold	= 15 tonnes
Sales income	= $11250	Sales income	= $15000
Cost of ice and boxes	= $100	Cost of ice and boxes	= $100
		running van	= $350
		extra labour	= $400
		marketing	= $200
		Annual depreciation cost of van	= $300
		Total costs	= $1350
CONTRIBUTION: $11250-$100	= $11150	CONTRIBUTION: $15000-$1350	= $13650

In this example, selling to the retailers will contribute more to covering production costs and towards profit than will selling to the broker. Of course, the fish farmer must also be clear that he can manage to sell effectively to the retailers and that he can offer them a service that will be of an acceptable standard.

5.4.3 Distribution patterns

The correct distribution decision, like other marketing decisions, can only be made by looking at each situation separately. Nevertheless there are some general guidelines which can be given:

1. Distances
   The further markets are away from the fish farmer, the more likely it is that more stages will be needed and the fish farmer will find it best to sell to brokers or wholesalers rather than direct to retailers, or to households.

2. Size of output
   The larger the fish farm the more likely it is that markets away from the local area will have to be found and that wholesalers will have to be used. But as output gets larger it may also be worthwhile for the farmer to set up his own arrangements to get the fish to the wholesalers rather than selling through a broker.

3. Control
   The efficiency and standards of intermediaries vary a great deal between countries. In countries where distribution systems are not well developed and intermediaries are slow and do not handle fish well, the fish farmer may have no alternative but to by-pass the existing channel if he wants to get the fish to households in good condition. This may not be difficult if markets are local, but causes problems if they are more distant and the individual fish farmer has only a few tonnes of fish to sell. In this situation, if there are other fish farmers in the area, by combining everyone's output through a co-operative selling arrangement it may be possible to set up a new system to reach retailers or households directly. (See chapter 10.)

4. Tradition
   Distribution systems are influenced by tradition and by the power held by different members of the channel. The fish farmer should be sensitive to this issue. Sometimes, for instance, although the fish farmer would like to sell directly to retailers, this may be difficult to do because the wholesalers will not allow this. The same may be true of the attitudes of retailers towards the fish farmer selling direct to households. Eventually these problems can often be overcome, but the fish farmer should recognise that this may take a great deal of time and effort.

5.5 Choosing Intermediaries

Once a general decision about the type of distribution has been made, the fish farmer has to select the individual brokers, wholesalers or retailers with whom he wants to do business. Since they have an important rôle in keeping the fish in good condition and getting as high prices as possible, this decision must also be made carefully. Some of the questions which should be asked about them are:

- is the quality of the fish which they sell good?
- do they display fish well?
- do they have a good reputation with customers?
- do they have a good reputation with suppliers?
- do they pay suppliers promptly?
- are they well organised?
- do they have the sort of customers you want and do they sell a good range of fish to attract customers? (important when wholesalers or retailers are not located in main markets and customers must make special trips to them)

The best customers to have are not always the biggest ones. Sometimes smaller customers will make a bigger effort because they themselves want to grow bigger. What is important is to choose customers who will make the most effort to sell the fish in the way that you want.

CHECKLIST: GENERAL

1. HAVE ALL THE DISTRIBUTION PATHS BEEN LISTED?

2. WHAT DOES EACH ALTERNATIVE OFFER?

3. WHICH ALTERNATIVES FIT BEST WITH TARGET MARKETS AND THE CAPABILITIES OF THE FISH FARM?

4. HAVE THE CONTRIBUTIONS OF THE MOST SUITABLE ALTERNATIVES BEEN CALCULATED AND COMPARED WITH EACH OTHER?

5. HAVE INTERMEDIARIES BEEN SELECTED WHO ARE MOST LIKELY TO MARKET YOUR FISH IN THE WAY THAT YOU WANT?

CHECKLIST: DISTRIBUTION FUNCTIONS

The following functions have to be carried out to get the fish to final customers at the end of the channel. Check on who is carrying them out and that they are being done in the best way given costs and customers requirements:

1. MARKETING
2. TRANSPORT
3. ORDER TAKING AND SELLING
4. ARRANGING PAYMENT
5. PROVIDING CREDIT
6. PROVIDING STORAGE
7. PREPARING FISH
8. STORING FISH
9. BREAKING BULK DELIVERIES
10. ASSEMBLING FISH
11. MARKET RESEARCH

6 PRICING

6.1 Pricing Decisions

Pricing decisions are among the fish farmer's most important decisions because prices have a major effect on the types and amounts of foods that people buy. This is because for most people economic considerations of what they can afford and whether they can buy other things more cheaply are a central part of buying.

Decisions about prices are made by examining the relationship between price and sales and by relating this information to the costs of supplying different outputs. Since this chapter builds on the discussion on economics in chapter 4, it would be helpful to read that chapter before continuing. This chapter is also closely related to chapter 5 because price levels depend on the distribution systems being used. To keep things simple however, this chapter looks at the general principles behind pricing and does not look at each distribution stage separately. This is possible because the same general principles apply in each situation.

6.2 Price And Output In Competitive Markets

When fish farmers sell their fish in very competitive markets, they frequently have very little choice over the prices at which they sell. Competitive markets are ones with the features described in figure 6.1.

Figure 6.1 Competitive Markets

Competitive markets

- markets where there is little difference between fish from different sources of supply
- markets where there are a large number of suppliers
- markets where each supplier supplies only a small % of total supplies
- markets where customers have good information about the prices being offered
- markets where customers can switch easily from one source of supply to another

---

In competitive markets fish farmers have to sell at the prices ruling in the market for a given quality or type of fish or they will not be able to sell at all. If they try to sell at prices above those of other fishermen or farmers, customers will switch to other cheaper supplies. The only way in which higher prices can be gained is when something extra such as higher quality is offered. Because of the pressure of competition, prices are already as low as they can go for it still to be worthwhile for the fish

farmers to operate. If there is a lot of competition at all stages in the distribution channel this will be true of selling at every stage.

In this situation the main emphasis of the fish farmer will not be on choosing prices - which they cannot do - but deciding how best to plan output in terms of timing and premiums for quality so that, given these prices, they can do as well as they can. To do this, information is needed on the following:

- how prices vary during the week
- how prices vary at different times of the year
- how prices are affected by changes in the price of competing products (e.g. other types of fish and meats)
- how prices vary for different qualities
- how prices vary for different sizes

There can be other reasons why fish farmers have little choice over selling prices. One of the most common is because there are a lot of suppliers of fish selling only to a very small number of customers - for instance to a small number of wholesalers. In this situation if the farmers have no alternative outlet the wholesalers have more power than the fish farmers and can impose the terms they want. There is not a great deal that the fish farmers can do about this directly, but they may be able to improve the situation over the longer term by combining themselves into co-operative groups (see chapter 10).

6.3 Pricing When The Fish Farmer Can Influence Prices

6.3.1 Prices and production plans

This section deals with pricing policies when, by contrast, suppliers have some choice over the prices which they charge. This happens when:

- the fish farmer is the only supplier to the market (for example, if the farm is in a remote area, supplying local customers and transport costs are high enough to stop fish from being brought in from outside the area)
- the fish farmer is the first to start supplying a species and is, temporarily at least, the only supplier

The fish farmer still has competition from other fish and foods and but does not face close competition from people supplying the same product.

Pricing decisions in these situations are closely tied up with decisions about output. At higher prices, fish farmers will sell less than at lower prices. Therefore when decisions are taken about how ponds are to be stocked, decisions are also being taken about the prices to be charged when the fish are ready for sale.

6.3.2 Prices and sales income

Chapter 4 showed that the most profitable output is when the gap between sales income (money coming in) and costs (money being paid out) is greatest. Thus to take pricing decisions information is needed on expected sales at different prices and on costs of different levels of output.

PROFIT	=	SALES INCOME (PRICE X QUANTITY)	-	COSTS
		depends on prices		depends on quantity of fish sold

This section looks at sales income and the next section looks at costs.

In estimating sales income it is not enough to know that sales volume is greater at lower prices. How sales change as prices change is also important. For instance, in the example in figure 6.2 sales increase as prices fall from $0.7 per kilogramme to $0.6 per kilogramme, but sales income does not increase - or in other words, although more is sold, less money is earned at the lower than at the higher price. On the other hand, when prices fall from $1 per kilo to $0.7 per kilo, the increase in sales is big enough for sales income to increase as well.

Figure 6.2 Examples of Different Demand Reactions to Price Changes

PRICE ($ per kilo)	SALES (kilos)	SALES INCOME ($)
1.0	1000	1000
0.9	1200	1080
0.8	1500	1200
0.7	1800	1260
0.6	2000	1200

The first task therefore is to try to estimate just how responsive sales are to lower and higher prices. Figure 6.3 shows some of the factors that tend to make sales very responsive to lower prices:

Figure 6.3 Responsive Demand

Factors making for much larger sales at lower prices:
1. When there are many alternatives at similar prices which can be substituted.
2. Only a small % of potential buyers can currently buy because the price is too high for them.
3. This fish is a high % of people's total outlay on food so lower prices are an important advantage to them.
4. When lower prices could increase the number of times that people are prepared to eat fish.

When these conditions are reversed sales increase by much less at lower prices.

Estimating sales is not easy because the amount of fish that people choose to buy is influenced by many factors and it can be difficult to separate out the effect of price. Sometimes there is experience from previous price changes which can provide a useful guide, but only as long as there have not been significant changes in conditions. Nevertheless, because it has such a critical effect on the best prices to charge, some attempts should be made. In practice also, as the next section shows, it is often the case that sales have to be very sensitive to prices to justify lower rather than higher prices. Thus rough ideas of sales at different prices will be sufficient for decisions. By asking the questions raised by figure 6.3 such rough estimates can often be made.

6.3.3 Prices, sales income and costs

Sales income can now be compared with costs in order to estimate profits. This has been done in the example in figure 6.4. In this example the fixed costs of the farm are $300 and the variable costs per kilo are $0.3.

Figure 6.4 Incomes and Costs

PRICE per KG $	SALES KG	SALES INCOME $	VARIABLE COSTS $	FIXED COSTS $	TOTAL COSTS $	PROFIT $
1	1000	1000	300	300	600	400
0.9	1200	1080	360	300	660	420
0.8	1500	1200	450	300	750	450
0.7	1800	1260	540	300	840	420
0.6	2000	1200	600	300	900	300

More profit is made at $0.8 per kg than at higher prices, because lowering prices has increased sales income more than it has increased costs. At prices lower than $0.8 costs are rising faster than sales income. Thus $0.8 is the most profitable price where the fish farm would be selling around 1500 kilos. Note that although sales are 25% lower at $0.8 per kilo than at $0.6, the higher price is more profitable. This re-emphasises the need to know how much more is sold at lower prices: just selling more is not sufficient.

If there is a change in demand or cost conditions, then the best price to charge will also change. If demand is increasing, then it may be possible to raise prices and if costs are falling, it may be profitable to lower them.

The more demand is affected by price, the more likely that lower prices can be justified. Thus, if other species of fish are close substitutes for the fish being priced, the best price is likely to be close to that of the other species because there would be very large losses of sales at higher

prices. Even although there is only one producer of that species, he has very little more choice over prices than in the very competitive situation described earlier.

6.4 Prices And "Sunk Costs"

So far, we have been considering "long term" pricing decisions because these decisions involved decisions about levels of production as well. After ponds have been stocked, however, if there are unexpected changes in conditions, it may be necessary to revise these decisions because the price chosen earlier is no longer the best one. If the demand for fish has grown it may be possible to sell at higher prices than expected, and if demand has fallen, it may be more profitable to lower prices in order to sell all of the output of the ponds rather than leave fish unsold. An extreme example of this is shown in figure 6.5.

Figure 6.5 Delot Fish Farm

QUESTION Delot Fish farm have one tonne of fish ready to sell. They had planned to sell the fish at $1.0 per kilo (($1000 per tonne) but they are finding it difficult to sell any fish at that price because supplies of extra fish have been brought into the area and are being sold at $0.5 per kilo. If Delot drop their price to $0.5 they will sell all their fish. The additional costs of harvesting the fish are $0.1 per kilo. What should they do?

ANSWER If there is nowhere else to sell the fish at a better price, it is better to sell at $0.5 than leave the fish unsold. This is because even if it does not cover all costs, the sales income would bring in more than enough money to cover the additional costs of getting the fish to the market:

Sales income	$0.5 x 1000	$500
Marketing costs	$0.1 x 1000	$100
Balance of income to put towards covering other costs already incurred		$400

Although the farm may be making a loss, more income is brought in than would be the case if the fish were not sold at all. Although the fish farmer has spent money on fixed costs, on fry, fertilizers, etc., these expenses have already been incurred - whether or not the fish are sold. It is better therefore to make the best out of a bad situation by selling at low prices.

Of course, the fish farmer cannot carry on in this situation indefinitely. If this lower price is expected to be permanent, it may not be profitable to re-stock the ponds or the species chosen should be changed. Nevertheless, the short-term decision to make the best out of a bad situation was justified.

6.5 Prices And Polyculture Systems

So far it has been assumed that the fish farmer has only one product but this may of course not be the case. This section therefore looks at pricing when the fish farmer is growing more than one species of fish.

Just as in monoculture, pricing decisions are closely tied in with output decisions, except that now the farmer has to consider what balance of different species he wants in a pond. This decision is affected by their prices.

If the second species has no effect on the quantity of the first species produced, then as long as the price received for the second species is greater than the additional costs of growing that species, it will be worthwhile to grow it. If the other fixed and variable costs of operations are being recovered from sales income from the first species, any additional sales income which is received and which is greater than the additional costs associated with the second species is an addition to profits. This is the case in figure 6.6 when profits increase with a second species.

Figure 6.6 Pricing and Output in Polyculture

PRICES: SPECIES A = $1 PER KG. SPECIES B = $0.5 PER KG

PRODUCTION SPECIES A	PRODUCTION SPECIES B	COSTS	SALES INCOME SPECIES A	SALES INCOME SPECIES B	TOTAL SALES INCOME	PROFIT
kg	kg	$	$	$	$	$
(i) 500	0	350	500	-	500	150
(ii) 500	200	400	500	100	600	200

If the second species is a substitute for the first, decisions are more complicated. Now the second species should only be substituted for the first as long as it is profitable to do so. This is not the case in figure 6.7. Although the number of fish produced increases with two species combined, because the income from the second species is low and the costs are high, profits are lower with the polyculture system. The loss of income from the first species is not compensated for by the increased sales of the second.

Figure 6.7 Competing Species and Polyculture

PRICES SPECIES A = $1 PER KG SPECIES B = $0.5

PRODUCTION SPECIES A	PRODUCTION SPECIES B	COSTS	SALES INCOME SPECIES A	SALES INCOME SPECIES B	TOTAL SALES INCOME	PROFIT
kg	kg	$	$	$	$	$
(i) 500	0	350	500	-	500	150
(ii) 400	200	400	400	100	500	100

In general polyculture systems are not profitable if they lead to the

substitution of a higher priced fish with a lower priced fish. Although some increase in total production is achieved it will not be sufficient to offset the lower average price received.

6.6 Prices, Payments And Risks

To keep the analysis straightforward the discussion so far has concentrated on price alone. Prices in some situations are however only one part of the financial deal made with customers, especially when selling to intermediaries. Some customers, for instance, pay more quickly than others. Some customers may be prepared to give credit if it is needed. Customers who are known may be less risky than customers who have not been dealt with before. All these factors must be taken into account in pricing decisions. For instance it may be worth accepting a lower price from a customer who pays quickly than selling at a higher price to a customer who is not known and where there is a risk of not being paid at all.

6.7 Prices And Other Areas Of Marketing

Finally, it must be remembered that price is only one part of marketing, even if it is one of the most important parts. Prices received and prices which can be charged depend on the fish and fish products being sold, their quality, the timing of sales and the markets in which they are being sold. When taking pricing decisions therefore they should be related to other marketing decisions.

CHECKLIST

1. WHAT COMPETITION DO YOU FACE? DO YOU HAVE ANY INFLUENCE OVER PRICES?

2. HAVE YOU PLANNED OUTPUT TO ALLOW FOR
   - DIFFERENT PRICES AT DIFFERENT TIMES OF THE YEAR?
   - DIFFERENT PRICES FOR DIFFERENT SIZES?
   - DIFFERENT PRICES FOR DIFFERENT QUALITIES?

3. HOW DO SALES CHANGE AT DIFFERENT PRICES?

4. WHAT ARE THE MAIN FACTORS AFFECTING THE AMOUNT SOLD AT DIFFERENT PRICES?

5. HOW DO COSTS CHANGE AT DIFFERENT PRICES?

6. HOW DO PROFITS CHANGE AT DIFFERENT PRICES AND SALES LEVELS?

7. HOW MANY EXTRA FISH WOULD HAVE TO BE SOLD TO JUSTIFY LOWERING PRICES? ARE THESE SALES LIKELY TO BE ACHIEVED?

8. HAVE ALL ASPECTS OF PRICES - RISKS, SPEED OF PAYMENT, SIZE OF SALES - BEEN TAKEN INTO ACCOUNT?

---

7 TALKING TO CUSTOMERS

7.1 Introduction

Developing the right products, the right prices and good distribution systems will not lead to sales unless customers are aware of the advantages of the product and these advantages are communicated to customers. This chapter deals with policies for the main forms of communication in fish marketing: personal selling and advertising. Personal selling covers direct contacts between fish farmers and their customers - usually face-to-face but also sometimes by telephone and letter. Advertising comes in many different forms, the most important of which are shown in figure 7.1.

Figure 7.1. Types of Advertising

7.2 Communications Tasks

Sellers communicate with customers for one or more of the following reasons:

1. INFORMING

This means telling potential customers about products. This is particularly important for new species or new fish products. People do not purchase products until they know what they are and how the products will benefit them. The more unfamiliar the product is, the more time has to be spent talking about it to inform and educate potential customers.

2. PERSUADING
Communications can help to persuade people to buy by stressing the aspects of the product that should appeal to them.

3. REMINDING
If people are faced with lots of different choices, it can help to remind them about a product so that they will remember it when they make choices.

Of course none of these tasks will be successfully carried out unless the product being sold is one that does meet people's needs at a price that they can afford. But if the product does have something to offer, then telling people about it will help to increase sales.

7.3 Choosing The Right Way Of Communicating

The key difference between advertising and personal selling is that advertising is a more remote, indirect way of talking to customers because the seller and buyer do not actually meet. Personal selling on the other hand involves discussions and feedback from buyers to sellers. Choices between them depend on many factors, the most important of which are listed in figure 7.2.

Figure 7.2 Advertising and Personal Selling

A.	ADVERTISING IS USEFUL
1.	When the number of target customers for the message is large
2.	When target customers are widely separated
3.	When products are different from each other in the eyes of customers
4.	When the message is simple
B.	PERSONAL SELLING IS USEFUL
1.	When the number of targets for messages is small
2.	When negotiations are needed
3.	When orders from each customer are large
4.	When feedback from customers is needed

Many fish farmers selling fresh fish to wholesalers and processors do not need advertising at all. First, they have small numbers of these sorts of customers so that they can contact them all personally. Second, there is no point in advertising over the heads of these customers directly to households because the fish are "unbranded" - that is to say households do not distinguish between fish coming from different farms. Households judge the

fish by its appearance and by the retailers from whom they buy.

Processed, packaged fish are sometimes an exception to this. For instance, processors of frozen prawns often do advertise to households. Households cannot easily judge the quality of frozen prawns at the time when they buy but they can identify the "brands" of different processors from the packaging. Advertising therefore can help to make customers aware of the names of different processors and build up loyalty towards particular brands.

Some guidelines for using advertising and personal selling in fish marketing are given in figure 7.3.

Figure 7.3. Communications in Fish Marketing

FOR FISH MARKETING

PERSONAL SELLING SHOULD BE:
- the main way of communicating with wholesalers and processors
- the main form of communications when brand names are not used

ADVERTISING TO WHOLESALERS, PROCESSORS AND RETAILERS SHOULD BE:
- rarely necessary when there are only small numbers of customers
- used mainly to give information about new products and supplies

ADVERTISING DIRECT TO HOUSEHOLDS SHOULD BE
- not normally used by individual farmers when selling non-branded fish via wholesalers
- sometimes used jointly with wholesalers and retailers if something new is being offered and if there are only a small number of suppliers
- sometimes used by all farmers acting together (see section 7.7)
- sometimes used when selling branded, processed products to inform, persuade or remind customers

---

7.4 Selling Tasks And Skills

7.4.1 Selling tasks

Selling involves combinations of different activities:

- delivering the product
- taking orders
- building good-will so that it is easier to get more sales in the future
- arranging delivery schedules such as arrangements for size, quality and timing of deliveries
- persuading customers to buy.

DO be tidy and organised

DON'T be late

DO know production plans thoroughly

DON'T come to meetings unprepared

DO be friendly to your customers

DON'T think of your customer as an enemy

Figure 7.4 Good Selling

How these tasks are organised will depend on the choices of the customer and the costs of organising in different ways, but it is important to make sure that all the tasks are done properly. For instance, if it is cheapest to make deliveries of fish by using fish farm workers or transport companies with no experience of the other parts of selling, owners or managers may have to go separately to customers to negotiate rather than leaving this task to inexperienced people.

Selling is one of the most important parts of marketing and good salespeople can make a big difference to success. Fortunately, there is a lot that people can do to help themselves. The most important rules are listed below and some "do's" and don'ts" are given in figure 7.5.

7.4.2 Selling skills: good presentation

Information for customers must be presented clearly, politely and carefully. Customers should be given reasons why they should buy, based on some thought about what the product does in fact offer. Any fears or reservations which customers might have about buying should be countered by persuasive and accurate reasons why these fears are not justified.

7.4.3 Knowing the product and production

Details of the deal with the customer will not all have been decided in advance. The customer may for instance want different patterns of delivery or sizes from those expected. Unless the seller has a very thorough knowledge of the operations of the farm and of the plans for output and unless he knows what scope there is for altering plans if necessary, it will not be possible to negotiate effectively.

7.4.4 Understanding costs

It is no use making offers to customers if they cannot be supplied profitably. If customers want changes in the timing of deliveries, or in the way in which fish are prepared for sale, the seller will not know how to respond unless he has complete knowledge of the accounts and costs of the farm. The buyer will in any case expect this knowledge from suppliers and will not be very impressed by a seller who does not appear to know his own business.

7.4.5 Listen

The great advantage of personal selling is that there are opportunities for listening to customers. Listening is in fact a very important part of selling because this is the way in which sellers can really find out what customers want. Even if this does not affect today's deal it can be very useful for future sales.

7.4.6 Good preparation

Finally, before meetings, time should be taken to prepare what is to be said and offered to customers. How is the offer to be presented? What are the best and most convincing arguments to use to persuade customers to buy?

In particular, thought should be given to the negotiating side of the meeting. It is in the interests of the fish farmer to negotiate the best possible deal, but it has also to be a deal that is acceptable to the buyer. The buyer will look for concessions before agreeing on terms. Unless the seller has decided on the terms he will accept before the meeting, and unless he has worked out what concessions can be made and what cannot, he is unlikely to do well in negotiations. What terms are being aimed for? What are the minimum terms which are acceptable? What concessions can be offered? Which concessions would cost too much to offer? All this should be thought about beforehand.

Figure 7.5 Selling Rules

DON'T	DO
Arrive late for meetings	Arrive on time
Be untidy and disorganised	Be neat and efficient
Talk constantly	Listen carefully to customers
Be vague about your operations	Know production plans thoroughly
Ignore costs and records	Have a good grasp of the economics of the operations of the farm
Regard customers as enemies to be defeated	Take an interest in customers and building up a good relationship with them
Wait for the meeting to decide how to negotiate	Prepare carefully for negotiations

Some people are naturally better at selling than others. Everyone can, however, improve as sellers if they spend time and trouble thinking about selling and preparing for contacts with customers.

7.5 Using Agents

Small farmers with distant customers may find it very expensive to carry out their own selling. A solution to this problem can be to use agents. Agents sell on a commission basis, usually receiving an agreed percentage of the value of the sales which they make. Using agents has the disadvantage that an important part of marketing is carried out by others so that there is no direct control over the way in which the selling is done. Realistically, however, the small farmer for cost reasons often has no alternative so in these situations it is a sensible way of organising sales.

As far as possible, agents should be chosen who will sell successfully. In the first place, care should be taken to choose people who:

- have been selling other products successfully or have at least some relevant experience
- are well thought of by their present customers and suppliers
- have contacts with useful customers
- present themselves well to you
- already have or are willing to find out all necessary information about fish farming and processing

After they have been engaged, try to check how well they are doing by:

- comparing orders received from different agents. Are differences because they are selling to different markets or because some are better agents than others?
- asking for details of visits made, contacts with customers, patterns of orders
- regular discussions

Agents can also expect something in return. It is the farmer's responsibility to keep the agent well informed on the production side with details of harvesting plans, fish quality, sizes, etc., and details of costs or negotiating positions so that the agent can perform effectively.

7.6 Choosing Types Of Advertising

In Section 7.3 it was shown that the main reason for advertising is to give information to people when there are too many to contact in person and the most common reason for doing this is when there is information to give about something new. Examples might be of a need to tell people when fish are ready for sale, that a new type of fish or fish product is available, or that there is a change in the place where the fish can be bought. The most useful ways of doing this are by:

- posters
- leaflets
- displays
- demonstrations
- newspapers

Other ways of advertising - such as using the radio, cinema or even television are likely to be far too expensive. It is not possible to generalise further about which particular method from the list should be used because costs and markets differ from country to country.

It is possible however to give the general guidelines that should be used in choosing how to advertise and how much to spend. Choices of the type of advertising should be based on the answers to three questions:

1. THE TARGET AUDIENCE
   Who do you want to reach?
   How well can they be reached by different methods?

2. COSTS
   How much would it cost to prepare material?
   What are the costs of distributing leaflets, putting up posters, etc.?

3. AVAILABLE MONEY
   How much money can be afforded for advertising?

Different types of advertising reach different types and numbers of people and have different costs so the benefits and costs of each method must be compared. For instance, if you want to attract new customers, you might want to put notices in newspapers but if you want to give information to existing customers, a poster in the retail fish market might be a better idea. Who would see posters? Who reads newspapers? Who could leaflets be delivered to? What proportion of the people who would see the advertisement are possible buyers and how does this compare with the costs of reaching them?

It is very difficult to decide exactly how much to spend on advertising because it is very difficult to estimate just how effective the advertising will be. A helpful question to ask however is just how many extra sales or how much higher prices have to be to justify the cost. This can be done by estimating from the costs of the advertising what the extra contribution to profit would have to be to make the advertising worthwhile. If you think it is possible to make these sales, it is worth going ahead. If, however, you think this is unlikely, then do not do so.

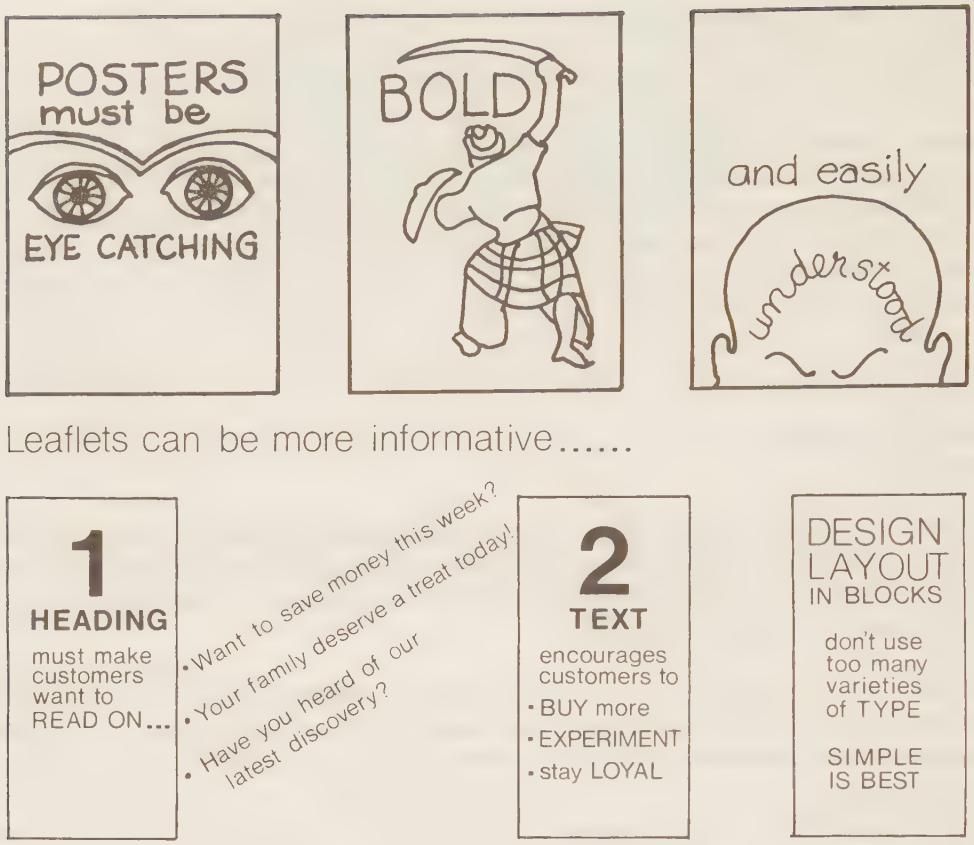


Figure 7.6 Making Notices Eye-Catching

Just as important as choosing the type of advertising is what should be said and how it should be said. To take decisions, follow the sequence of questions below:

OBJECTIVE:	what do you want the advertising to do?
TARGET AUDIENCE:	who do you want to talk to?
KEY BENEFIT:	why should people buy? what is the main benefit to be advertised?

If these rules are followed, it should be possible to draw the attention of people to the product and talk to them in a way that will interest them. The following guidelines will also help:

- be simple
- talk to people in a way that they can understand
- make sure the name of the product is clear
- don't put any more information on the advertisement than is necessary
- make lettering bold and clear
- be eye-catching
- be truthful

7.7 Generic Advertising

In a number of countries advertising has been carried out either to increase the amount of fish that people eat or to increase the eating of particular types of fish. Usually these campaigns have been undertaken by governments but sometimes they are paid for by producers. The aim is to

increase sales in general rather than just the sales of one individual producer. These campaigns can be very successful, particularly when people are being introduced to something new or unfamiliar.

When producers undertake such advertising, normally each producer contributes to the costs. Like any other expenditure therefore the individual producer should check that the money is being spent wisely and will contribute to greater profits. Some guidelines to check whether the advertising is likely to be successful are:

- is the main barrier to larger sales the fact that consumers do not have enough information?
- is there a clear objective for the advertising and does it seem well organised?
- are most other producers taking part? Otherwise the burden will fall unfairly on those who are doing so.
- are all farmers producing fish of similar quality? Otherwise the advertising could fail because quality is very variable and the claims of the advertising are not being matched by the quality of the fish.

CHECKLIST

1. WHAT COMMUNICATIONS DO YOU NEED WITH YOUR CUSTOMERS?

2. HOW SHOULD YOU COMMUNICATE WITH CUSTOMERS?

3. DO YOU SPEND ENOUGH TIME PREPARING SELLING ACTIVITIES?

4. HAVE YOU ALL THE FACTS YOU NEED ABOUT PRODUCTION AND FINANCE?

5. HAVE YOU DECIDED ON NEGOTIATING LIMITS?

6. HAVE AGENTS BEEN SELECTED CAREFULLY?

7. DO YOU CHECK THE WORK OF AGENTS?

8. DO YOU NEED TO ADVERTISE?

9. HAVE YOU SELECTED THE MOST APPROPRIATE ADVERTISING GIVEN ITS COVERAGE AND ITS COSTS?

10. IS THE ADVERTISING SIMPLE, CLEAR, EYE-CATCHING AND DESIGNED TO MEET ITS OBJECTIVES?

---

8 GETTING THE FISH READY FOR CUSTOMERS

8.1 Quality

Quality cannot be defined in a simple way because customers vary in their preferences. As with other aspects of the "marketing mix" there may be variations between the demands of different regions, different countries and between different individuals in the same community. Quality demands also change over time, and generally if people get richer and if people see quality standards rising for other foodstuffs, they will want higher quality in the fish which they buy. Each market has therefore to be looked at separately to find out its quality needs.

Nevertheless, there is a wide area of agreement on the sorts of things that are involved in quality. When people talk about quality they are usually taking about a combination of:

> appearance of the fish, smell, taste, freshness, cleanliness, safeness to eat, adequate packaging, ease of preparation, form of processing

In the same way, there is agreement on the ways in which good quality fish can be made available to customers. This chapter is an introduction to this topic, but further help and more detailed advice can be found in the books listed at the end of the chapter.

8.2 Quality Control And Fish Farming

Quality control starts with the growing of fish. However good the handling of fish after they leave ponds, unless they have been carefully looked after during on-growing they will not be good quality fish. Good handling can never disguise poor quality fish. Overstocking, dirty water, dirty equipment, poor food will all lead to smaller fish with poorer flesh, to damaged fish and to diseased fish. Good farming practices do not necessarily cost any more than poor practices but they can do a great deal to make fish more acceptable to customers.

Of course, there are some aspects of quality where costs are involved and these costs have to be balanced against the higher prices that higher quality brings. For instance, flesh quality can be improved through buying more expensive, higher quality feed. Lower stocking densities can produce bigger but higher cost fish. Flesh colour can be changed through supplementary diets. The correct decisions will depend on the quality customers want measured by what they are prepared to buy. This is difficult to assess because customers find it difficult to say how they will react if offered something new and different. Often, however, it is possible to try out new quality combinations on a small scale first to see how people react.

Fish farm management is outside the scope of this book and this chapter is concerned mainly with handling fish after they leave the ponds, but the need to start quality control right at the beginning has been shown in the examples above.

8.3 Quality In Handling And Processing

The main purpose of quality control is to keep fish as fresh as possible. Fish spoil very easily and faster than many other foods, so care has to be taken to make sure that this does not happen and that the fish reach the consumer in good condition.

Fish spoil mainly due to the presence of tiny living organisms called bacteria. There are bacteria on living fish but it is only when the fish are dead that the bacteria start to cause decay. This decay becomes faster if the fish come into contact with other surfaces carrying bacteria which get transferred on to the fish itself. Decay can be reduced by:

1. handling the fish carefully
2. keeping the fish clean
3. keeping the fish cool
4. getting the fish to customers as fast as possible

The sections below give some introductory guidelines or "Codes of Practice" to help to do these things.

8.4 Handling Fish

Before killing	Fish should be starved for at least 24 hours in warm climates and 3-4 days in cooler climates. Muddy odours can be removed if customers wish by holding in brackish or salt water for 3-4 days or in clean freshwater for a week. Molluscs and shellfish should be immersed in clean water. It is better to change the water several times. Drugs should be stopped before killing for the time recommended by the drug manufacturers.
Killing	Fish should be killed quickly and cleanly with as little stress to the fish as possible since otherwise the fish will not keep well. Fish that are maturing or have just spawned should not be used if high quality is needed. Good quality fish should not have damaged scales, deformities, cuts in the skin, eroded fins and tails. Flesh should be firm and well-formed. The fish should have a clean fresh smell.

Preparing fish:

Gutting	(removing the gut and cleaning the belly) Fish from cooler waters keep better if gutted. Gutted fish should have no damage to the stomach wall and should be cleaned out. Sharp knives should be used. In some tropical countries consumers prefer ungutted fish; this preference can be followed provided it does not entail risk for the consumers.
Filleting	(flesh cut into boneless slices)
Splitting	(gutting and splitting into 2 pieces) (depends on
Boning	(removal of bones) customers)
Steaking	(fish cut into vertical pieces)
Heading	(removal of head)
Grading and sorting	If customers require this, it should be done according to their specifications. Bruised and damaged fish should be sold separately.
Boxing	Fish should be packed carefully to avoid twisting or squashing, normally belly side up. Fish keep better in ice so use ice if available.

Freshwater fish are more prone than marine fish to carry micro-organisms and parasites of public health significance, so extreme care is necessary in rearing, handling and processing them.

8.5 Good Hygiene

Working surfaces	Should be washed down and brushed thoroughly every day using clean water and disinfectant. All working surfaces should be of materials which do not soak up water (to avoid growth of bacteria).
Equipment and tools	Should be kept clean and off the floor.
Personal cleanliness	Hands should be kept clean and washed and scrubbed frequently. People with cut and damaged hands should not handle fish. Clean towels should be used. Protective clothing should be kept clean.
Storage	Fish should be kept off the floor and should be kept in boxes with ice if possible.

Boxes	Should be clean and free of rough surfaces. They should be thoroughly cleaned, disinfected and rinsed before use. Boxes should be labelled.
Buildings	Preferably fish should be handled in covered areas with floors that are easily cleaned. Screens on doors will help to keep out animals and insects.

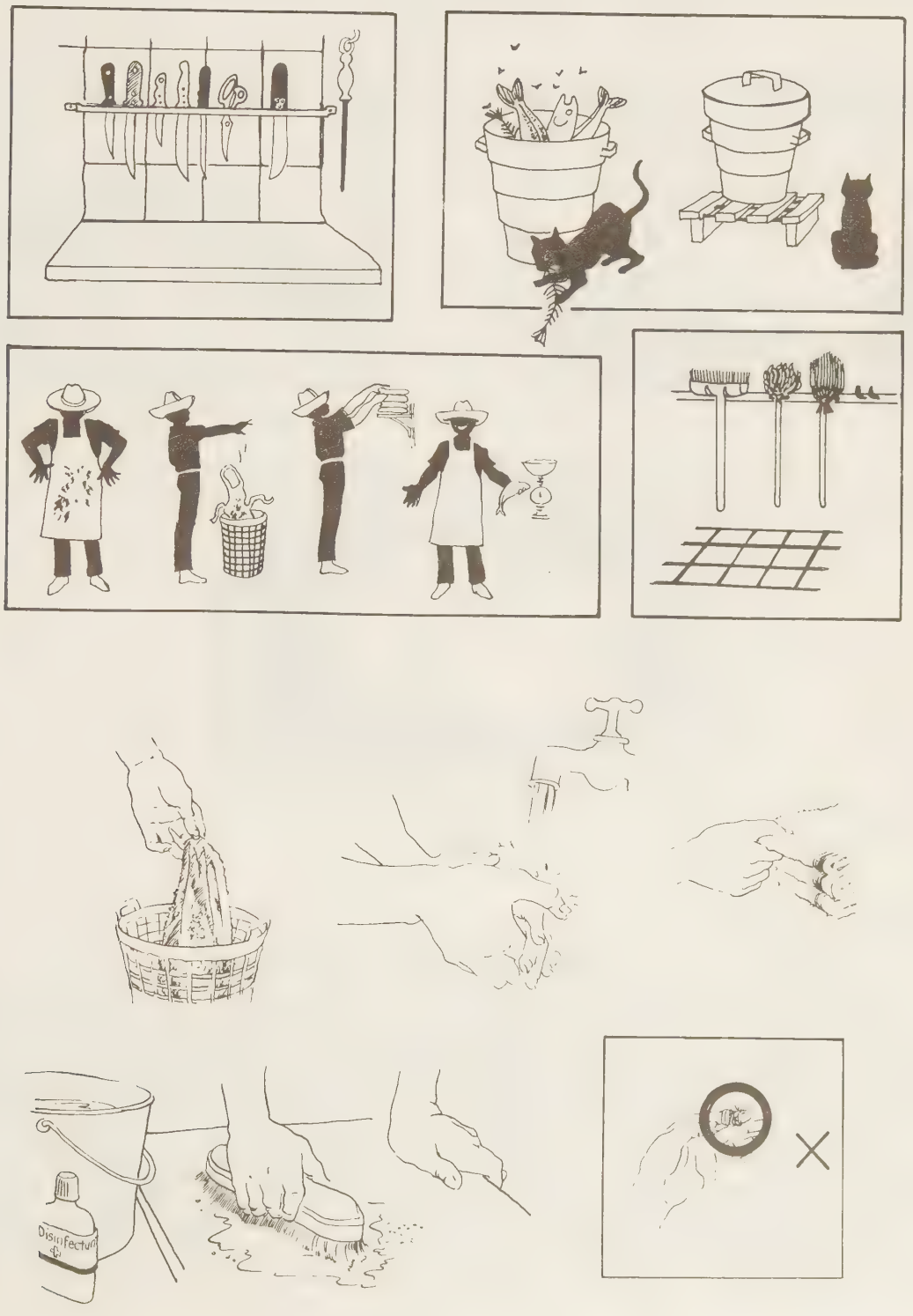


Figure 8.1 Good Hygiene

8.6 Handling Wet Fish

The higher the temperature, the faster fish spoil, hence the best way to slow down spoilage is by keeping fish cool. By far the best method of doing this is to use ice. If the fish are packed so that the ice is in close contact with the fish, it should be possible to keep the fish at 1° Centigrade. At higher temperatures the fish will spoil more quickly and at lower temperatures the fish will start to freeze slowly, something to avoid because slow freezing has a bad effect on the quality of the fish.

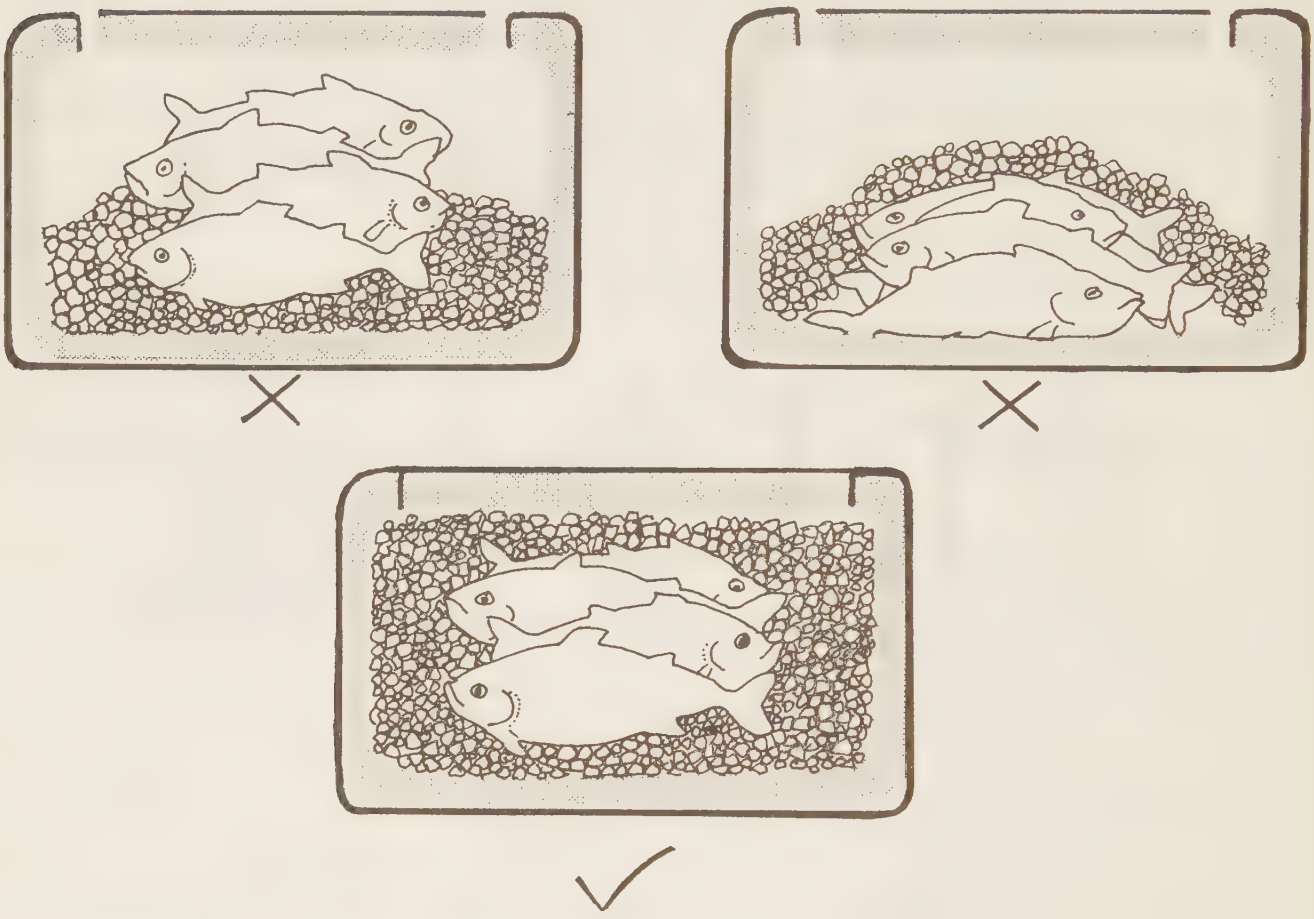


Figure 8.2 How to Ice Fish

Ideally, fish should be packed in ice within 60 minutes of killing. Fresh ice should be firm and dry but any ice is suitable as long as it is made from clean (drinkable) water. The fish should be packed with ice at the top and bottom and in between whole fish. The amount of ice needed varies: in hot climates equal parts of ice and fish are likely to be necessary, but a ratio of 2 or 3 parts fish to one part ice may be acceptable in cooler climates. The amount of ice needed also depends on the length of the journey to be made, the coolness of the surroundings in which it is kept, and the type of box or container utilized. It is important that the fish stay covered in ice until they reach customers so re-icing may be necessary from time to

time. Keeping the fish in a cool place will help to stop the ice from melting.

The choice of packing will depend on the materials available and their cost. Plastic insulated containers are the best. Clean wooden, plastic or aluminium boxes lined with waterproof paper can be utilized. If these are not available, fish can be carried in baskets with a lid, or covered with leaves or in ice-boxes made from oil drums or other re-usable containers. Lids should be airtight. The main requirement is that containers should be clean, sturdy and waterproof. As far as possible they should be stored in a cool place and the containers should be cool when they are first filled with fish. Vehicles used to transport fish should be covered.

How long the fish will remain in good condition on ice varies a great deal. Tropical fish remain in good condition for longer than fish from cooler waters. Freshwater fish in general keep longer than marine fish. This will be something to experiment with in local conditions. In general, however, the faster the fish can be got to customers, the better.

Ice is the preferred method of keeping fish fresh but this is not always possible. In some areas iced fish is regarded with suspicion because customers fear that ice has been used to disguise the fact that the fish is not fresh. In some cases ice is not available and the fish farm cannot afford to buy its own ice-making equipment. Transporting fish live (see section below) may be an alternative. If not, it is important to remember the general rules for keeping fish cool and clean:

- get the fish to customers as quickly as possible
- keep the fish cool by covering them with a clean and wet mat or tarpaulin, keeping them in the shade and moving them at night when temperatures are lower

8.7 Live Fish

If the fish can be taken live to customers this is by far the best guarantee of freshness.

Live crustaceans (shrimps, lobsters) and live molluscs (oysters, mussels) can be carried live in moist, cool conditions, such as packed in ice and seaweeds.

Finfish can be carried in tanks or smaller containers carrying water. They can be carried under the right conditions at a stocking rate of 50-500 grammes of fish per litre. It will pay to have densities as high as tolerable for the fish because of the costs and inconvenience of carrying water which is heavy and difficult to transport. Fish should be starved for 24 hours (warm climates) and 3 to 4 days (cooler waters) to reduce the fouling of the water in transit. Adequate oxygen must be in the water, which may mean that for longer journeys and bigger loads, blowers have to be used to aerate the water. Insulation is very necessary because the higher the temperature of the water, the more fish will die. Wrapping the tanks in polystyrene is the best method of insulation but anything that reduces the temperature is helpful. If the journey time is long, it may be necessary to change the water partway.

Purpose built vehicles are available to move live fish but it is possible to improvise with tanks and other containers on the back of lorries or on boats, particularly if the journey is short.

Live fish usually sell at higher prices than dead fish but it will be necessary to check that the extra price covers the additional costs involved. It is also worth remembering that the part of the total market prepared to pay premium prices for live fish can be quite small.

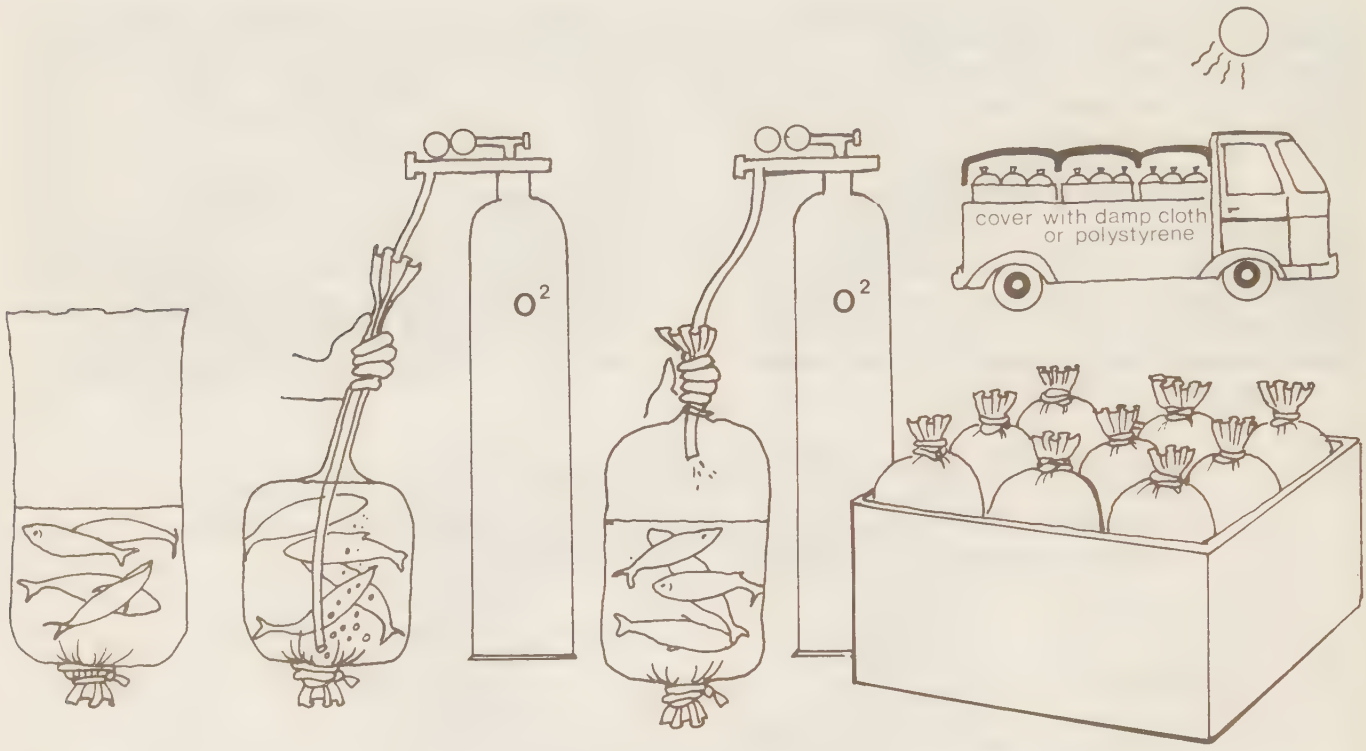


Figure 8.3: Carrying Live Fish

8.8 Handling Frozen Fish

Freezing and cold storage cannot improve the quality of fish, so it is essential that the fish are frozen when they are as fresh as possible. Delays before freezing should be avoided and fish should be kept iced before they are frozen. The same hygiene rules should be used as for wet fish.

So that the product is of an acceptable quality, it is usually necessary to freeze quickly in purpose built facilities. These can be blast or plate freezers and whole fish should normally be frozen individually. Fish will not freeze properly in cold stores or domestic freezers. The temperature should be at least -30^{o} and preferably -40^{o} Centigrade. There should be space for warm air to be removed so the fish should not be packed too closely together.

The frozen fish should be stored at -20° Centigrade and preferably -30° Centigrade. The fish should either be glazed (dipped in water after freezing and before storage) or wrapped in waterproof materials to stop the fish from drying out. Fish should not normally be thawed and re-frozen. Frozen fish can be stored for up to a year.

Because refrigerated vehicles are not as good as the cold store for keeping things cool, fish should stay on the transport vehicles for as short a time as possible and the doors should be opened as little as possible.

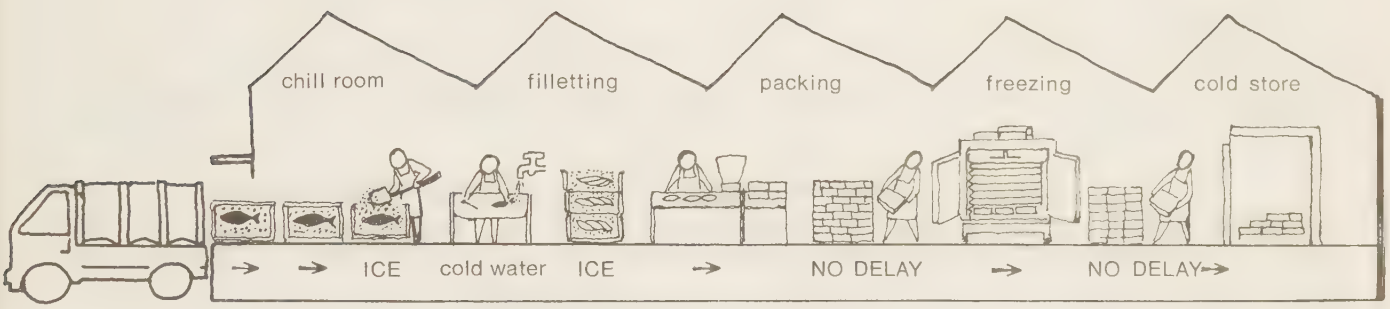


Figure 8.4: Good Practices in Fish Freezing

8.9 Handling Salted, Dried and Smoked Fish

8.9.1 Salting

Fish can be dried without being salted and the correct method will depend on the type of fish. However, it is advisable to salt fish before drying if this is acceptable to customers because this gives a better yield of dried fish and it lengthens the time for which the product can be stored. Salt should be as pure as possible. In some cases salt prevents infestation by flies.

8.9.2 Drying

Large fish should be split before salting and drying so that they will dry more evenly and quickly. The fish should be dried on racks above the

ground to help drying and keep away bacteria and they should be sloped to allow moisture to run off. The fish should be protected from rains. How long the fish will last will depend on the combination of the amount of salt used and how much moisture remains in the fish. Some rough guidelines are given below, although actual times will vary depending on how well the fish are handled:

Figure 8.5 Storage Life of Dried Fish

WATER CONTENT	SALT CONTENT	MINIMUM "GOOD QUALITY" STORAGE LIFE
%	%	
40	5	3-4 days
40	20	6 weeks
35	5	3-4 days
35	20	3-4 days
25	5	1 week
25	20	2 months
15	5	more than 1 year
15	20	more than 1 year

Source: Guy Poulter, Overseas Development Administration, United Kingdom 1980.

It is important that the fish should be packed in boxes or other containers with a lid since the fish must not be left uncovered because of the dangers from damage by insects and the need to keep the fish clean. Plastic or polythene bags can also be used. The fish should be stored in a cool place where there is a current of air to help keep things cool. The fish should be kept covered during transport to the customer and it is better if closed transport can be used.

8.9.3. Smoked fish

Generally the same rules should be used as for dried fish. If the smoked fish are cold smoked (not recommended) or hot smoked with a high water content, they will have the same shelf life as cooked fish and should be eaten within one or two days. If fish are hot smoked with a lower moisture content (smoked dried) then they can be stored for the same time as dried fish. It may however be necessary to store smoked fish separately from other fish and foods because the strong flavour of the smoked fish can be transferred to other foods.

8.10 References

Some references on fish processing have already been given in Chapter 3. Further references to more detailed information on handling and processing fish can be found in the following:

- Ice in Fisheries
  FAO Fisheries Technical Paper No. 59
- Planning and Engineering Data 1. Fresh Fish Handling
  FAO Fisheries Circular No. 735

- Recommended code of practice for fresh fish
  FAO/WHO CAC/RCP 9, 1976
- Planning and Engineering Data 4. Containers for fish handling
  FAO Fisheries Circular No. 773
- Refrigerated storage in fisheries
  FAO Fisheries Technical Paper No. 214
- Road transport of fish and fishery products
  FAO Fisheries Technical Paper No. 234
- Support and development of the retail trade in perishable fishery products
  FAO Fisheries Technical Paper No. 235

FAO Training Filmstrips

- Handling, Processing and Marketing of Cultured fish
- How Perla improved her fish stall
- Fish Preservation I. Salting
- Fish Preservation II. Smoking-drying
- Fish Preservation III. Drying

CHECKLIST

1. WHAT QUALITY ARE CUSTOMERS WILLING TO PAY FOR?

2. ARE YOU OFFERING THE RIGHT QUALITY IN THE LIGHT OF THESE NEEDS?

3. DO YOU FOLLOW GOOD HYGIENE PRACTICES:
   ON THE FARM?
   IN KILLING?
   PREPARING FOR SALE?
   STORING FISH?
   TRANSPORTING FISH?

4. DO THE FISH REACH CUSTOMERS IN GOOD CONDITION?

5. ARE THERE ANY OVERALL IMPROVEMENTS IN HANDLING WHICH YOU SHOULD MAKE?

---

9 DISPLAYING FISH FOR CUSTOMERS

9.1 Retailing Fish

When the fish farmer sells directly to households, he has the great advantage that he can completely control all aspects of marketing. There is no need to worry about the standards and methods of merchants and retailers because the fish farmer deals directly with the final buyers. This opportunity must, however, be used well. Customers will judge the fish farmer and his fish by the way in which the fish are displayed and sold. If the fish are sold in the right way and displayed in surroundings which are as clean as possible, customers are likely to assume that the fish are good quality and wholesome to eat.

9.2 Retailing Choices

9.2.1 The choices

First, the fish farmer has to choose the way in which the fish are to be sold. There are a number of alternatives:

- at the fish farm
- in stalls in local markets
- by travelling sellers (the fish farmer or helpers) on foot, using bicycles or vans
- in shops run by the fish farmer

Depending on the circumstances, any of these alternatives may be the right one to choose. Each is examined in turn, followed by a discussion of the choices between them.

9.2.2 At the fish farm

This is, under the right conditions, a very popular way for the fish farmer to sell fish. It has a number of advantages:

- FRESHNESS
  Fish can be kept live until or just before sale
- WASTE
  Fish can be taken from the ponds as customers need them - this reduces waste and losses of money because unsold fish do not have to be thrown away
- COST
  There are no transport costs to customers and there is no need to pay for a selling area.

Whether this is the best way to sell will depend on:

- how much can be sold
- selling prices compared with costs

To estimate this involves finding out:

- how many people live near enough to travel to the fish farm
- how easily they can get to the fish farm (roads, rivers, paths and their condition at different times of the year)
- where other fish are sold. If people can buy similar fish for similar prices at places which they can reach more conveniently, they will not come to the fish farm.
- how the fish quality compares in customers' opinions with quality elsewhere. If the fish are better quality or lower in price, customers may be prepared to make a special effort to come to the farm.

If the fish farmer is going to sell at his farm, he does not have to buy much equipment - an awning or stall to protect the selling area, some scales and paper or leaves to wrap the fish. He will also need signs outside the gate saying that fish are for sale and other signs directing customers to the farm. These things can be provided fairly easily so it is possible to try to sell in this way and just see how it works.

9.2.3 Market stalls

In many towns and villages, people buy fish in local markets. Setting up a market stall is convenient for customers and could attract good business. If it is more convenient for customers to come to the market than to the fish farm, they may buy more and pay higher prices.

There are additional costs of selling at market stalls which have to be considered:

- costs of getting the fish to the market
- rent of the stall or selling area
- taxes to be paid (if any)
- costs of building stall
- costs of containers, ice, water, etc.
- costs of spoilt fish
- costs of people selling for fish farmer or value that the fish farmer puts on his own time

The money earned and the costs of running a market stall do not only have to be compared with the alternative of selling at the farm itself. They have to be compared with the alternative of selling to other stall holders who could buy the fish to sell from their own market stalls. They would pay lower prices but the costs of the fish farmer running his own stall are avoided. A great deal will depend on how many fish there are to sell. For small quantities it may not be worthwhile to run a separate stall because costs are not covered by the amount of fish sold.

Market stalls can often be taken for some days of the week only or for certain times of the year. This gives the fish farmer some freedom to sell when he has fish available, but to avoid expenses when he does not.

9.2.4 A shop to sell fish

The most expensive option is to set up a permanent enclosed shop. Normally shops have to be rented on a semi-permanent basis for months or

years, unlike the market stall which is much more flexible. Once again the expected sales and prices from the shop have to be compared with costs:

- rent of building
- taxes (if any)
- charges for water, lighting, power, ice
- costs of labour
- costs of transport to shop
- costs of spoilage losses

A permanent shop has the advantage that often its faciities are better for handling fish. There is often water, power, and lighting and much better shade from the sun. Because a shop is usually enclosed, it is easier to keep clean. If it is located in a busy shopping area, it can often do good business. Shops like this, if they exist, are usually found in richer areas of towns.

There are, however, big problems and risks in running a fish shop. The main one is that because of the high costs very large quantities have to be sold to make it worthwhile. It also means that fish have to be sold almost daily in order to build up regular customers who come to this shop rather than go to the market or to other shops. It is unlikely that a small fish farmer can provide this. To run a shop successfully would almost certainly mean selling a lot of other different types of fish as well which would have to be bought from other people. Not only does this involve a lot of money and risk, but it takes up a lot of time which might be better spent running the fish farm. If there are local fish markets nearby, the shop will be competing with the market stall-holders whose costs are lower.

If farmers have grouped together in a co-operative and the co-operative has a large quantity of fish to sell, this option becomes more attractive. It is still, however, essential to compare profits from this option with the cheaper alternatives.

9.2.5 Travelling sales

9.2.5.1 Sales on foot or with a bicycle

This is inexpensive since a basket, wrapping materials, scales and knives are all that is needed for selling on foot. Bicycles can be built with trailers for carrying fish. But the difficulties of selling in this way are:

- on foot only small amounts can be carried
- it can be difficult to keep the fish in good condition, especially when the fish are not in proper insulated containers.

This means limiting the area of sales for wet fish to one that can be covered in a day or two, or to drying or smoking the fish. This can be a very useful way of selling fish to local customers, especially if they would not otherwise come to the fish farm or to fish markets. This happens in many rural areas.

9.2.5.2 Sales by van

Like the option of buying a shop, this can be quite expensive. Sales and prices must be compared with the following costs:

- costs of van
- costs of fuel
- costs of maintaining the van
- costs of driver or cost of time of fish farmer
- costs of equipment, ice, wrapping

A great many fish have to be sold to justify these costs. Vans do, however, have the same advantages as selling on foot/bicycle:

- they can attract new customers and persuade people to eat fish more frequently

They have some advantages over sales by foot:

- bigger quantities can be carried over a wider area
- better shade can be provided and the fish will get to customers in better condition
- there is more room for preparing fish for customers
- it is possible to display the fish more attractively.

How successful a van will be does not just depend on the number of people in the area covered by the van. It depends on people's buying habits and the competition from fish sold in other ways. For instance, if there are daily local fish markets which can be reached conveniently and where there is a lot of choice, people may not be interested in buying from a van. By contrast, if they live some way from fish markets, or if the markets only operate on certain days, this may be a good opportunity for a van.

Like the shop, the prospects for a van are likely to be much better if the van is offering customers a choice of different fish products - different varieties as well as wet, smoked and dried fish. This again means buying fish from other people or grouping together with other fish farmers. If there are already other vans who sell a variety of different types of fish selling just one type would be difficult.

9.3 Displaying Fish

When fish are displayed, whether at the fish farm, in a van, at a market stall or in a shop, two things should be aimed for:

- the display should keep the fish in good condition so that customers will be satisfied with what they buy
- the display should be interesting and attractive because this will increase sales.

There are 3 elements in success: paying attention to the standard of facilities, to the layout of the display and to working practices. The guidelines below are not just for sophisticated and expensive shops - many of them can be followed even when the selling area is very simple. These guidelines, of course, follow on from the guidelines for good handling of fish given in chapter 8, all of which are relevant here as well.

9.4 Facilities

The standard of facilities and their costs are usually closely related, although the more that can be spent on adequate facilities, the better. In any case, the same general standards are always necessary:

Figure 9.1 Selling Facilities: Good and Bad

SHADE — The biggest enemies are the sun and the rain. Try to provide awnings to cover the fish from direct sunlight and from rain. This will help to stop the fish from drying out and decaying.

SHELTER — Dirt and dust can be kept away by making sure that the selling area is protected from the wind. Shelter will help to keep insects away.

COOL STORAGE — Any method of keeping containers cool by wrapping or insulating them is useful. Containers packed with ice provide the best protection for wet fish (chapter 8).

WASHING — This is difficult because water is not always available, but wherever possible, buckets of clean drinkable water should be collected, used for cleaning and re-filled as necessary.

9.5 Displays

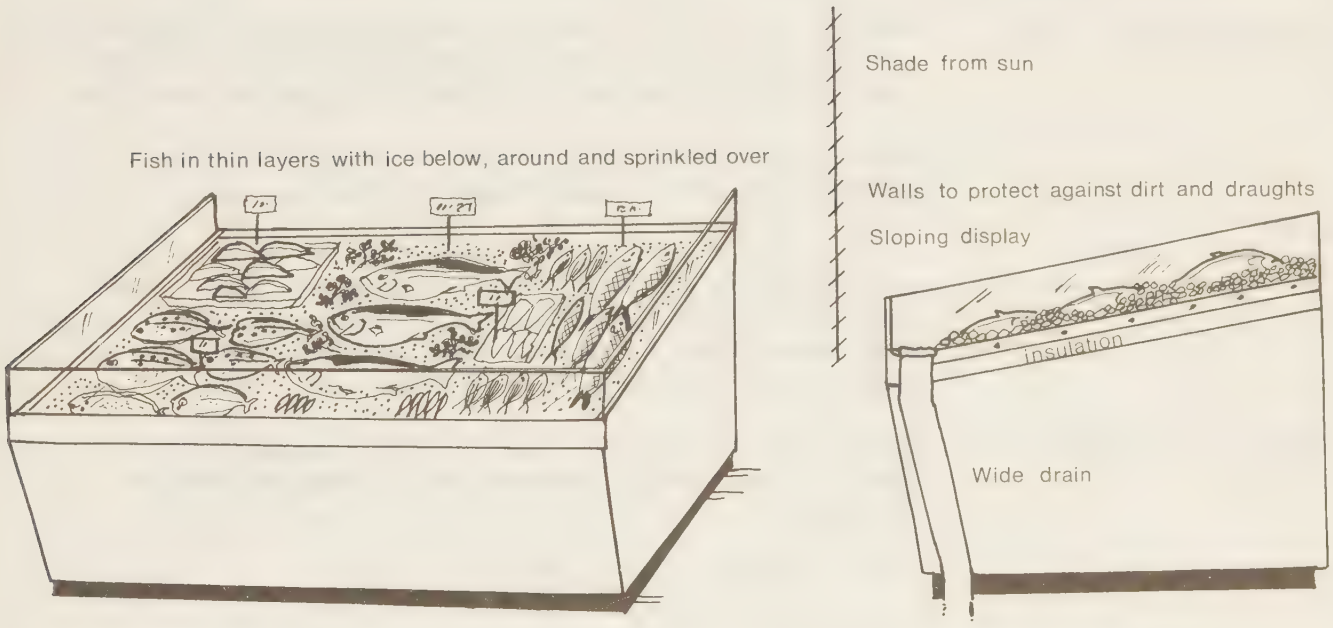

Fish in thin layers with ice below, around and sprinkled over
Shade from sun
Walls to protect against dirt and draughts
Sloping display
Insulation
Wide drain

Figure 9.2 Displaying Fish

Fortunately the needs both to keep the fish in good condition and to provide an attractive display can be combined:

ARRANGEMENT — Arrange display so that it is easy for customers to see and easy for the seller to get at the fish.

ICE

If possible, place wet fish on a bed of ice and do not pile the fish on top of each other. The unit on which the fish are displayed should slope (see figure 9.2) to take melting water away from the fish. Special display units can be bought or they can be made out of wood, provided that the wood can be scrubbed during cleaning.

If ice is not available, use clean trays, keeping them as cool as possible by providing shade. Moisten fish with clean, cold, drinking water.

THE DISPLAY

The box or unit on which the fish are displayed should be surrounded by low walls (15 cm high - see figure 9.2). This will help to keep dust and flies away.

TABLES

Where local customs allow this, sell the fish from tables and not from the floor where the fish are more likely to be damaged by dirt, dust, insects and animals.

9.6 Working Practices

All the suggestions in chapter 8 apply here but in addition note:

STORAGE OF WET FISH

Try not to put all fish on display at once. Leave in transport containers as long as possible, so that fish stay cool and are handled as little as possible.

Unsold wet fish at the end of the day should be chilled and re-iced or smoked or dried.

If the fish are no longer edible, get rid of them away from the selling area. Don't leave them on the floor where they will smell and look nasty. Keep waste fish in bins with lids and get rid of the waste daily away from the selling area.

STORAGE OF FROZEN FISH

Never keep in a retail cabinet for longer than a month - the storage temperature is not low enough for longer.

Never overload beyond the fill level.

Don't leave stocks of frozen fish outside the cabinet.

Sell the oldest fish first.

Remove any damaged packages - they will dry out.

Defrost the cabinet regularly.

Never re-freeze fish.

In some countries regulations allow fish which have been frozen to be sold thawed. But if this is allowed, the fish must be sold quickly.

PREPARING FISH	If customers want fish prepared for them, clean surfaces after working. Re-wash wet fish if necessary, cooling the fish again as soon as possible. Try to prepare as little fish before selling as possible - they keep better this way.
KEEPING INSECTS AWAY	Keeping the selling area clean is one of the best methods. Don't use insect sprays during the day because they may damage fish. Use at night when fish have been cleared away. Don't leave waste around.
AFTER SALE	Wrap the fish in clean paper, plastic or in clean leaves, in two layers of wrapping. Explain to customers that the fish will keep better if kept cool and clean.
TALKING TO CUSTOMERS	Customers like to be treated politely. Polite, helpful sellers sell more fish than rude, uncaring sellers. However busy you are, don't neglect the customer.

9.7 Further Reading

You can learn more about selling fish in:

F.A.O. Fisheries Technical Paper No. 235
The support and development of the retail trade in perishable fishery products.

Torry Advisory Note No. 12
Fish Display in Retail Shops

Torry Research Station,
P O Box 31,
135 Abbey Road,
Aberdeen AB9 8DG,
United Kingdom.

CHECKLIST

1. WHAT SELLING CHOICES DO YOU HAVE?

2. HAVE YOU COMPARED THEM FOR
   - EXPECTED SALES AND PRICES?
   - COSTS OF EQUIPMENT AND FACILITIES?
   - COSTS OF MATERIALS?
   - COSTS OF TRANSPORT?
   - COSTS OF PEOPLE?
   - COSTS OF WATER?

3. HAVE YOU SHADE, SHELTER, COOL STORAGE AND WATER IN THE SELLING AREA?

4. CAN YOU KEEP FISH COOL AND CLEAN?

5. ARE YOU HELPFUL TO CUSTOMERS - ALWAYS?

10 MARKETING CO-OPERATIVES

10.1 Introduction

By combining together with other producers in a marketing co-operative it may be possible to make more profit than by marketing alone. This can allow producers to make more efficient use of marketing opportunities or to take advantage of new opportunities which would not otherwise be available. The fish farmer has to decide whether, in his particular situation, forming a co-operative would help in marketing. If this is the case, the members must ensure that it is set up in a way that will make it work effectively.

10.2 What Is A Co-operative?

A co-operative is a group of producers who act together to achieve some business objective. They can do this on a very informal basis but normally, if the amount of co-operation is considerable, they will have a written agreement which describes the terms of their co-operation. Membership of the co-operative is voluntary but a condition, written or unwritten, of joining is that once the producer is a member he obeys the rules of the co-operative.

Normally any profits which the co-operative makes are returned to members in proportion to the amount of trading which they have done through the co-operative. The co-operative is managed and controlled by its members who either have a vote per head or votes in proportion to the amount of trading they do through the co-operative. Larger co-operatives employ managers and other staff who are responsible for the day to day running of the business, but the overall control of the co-operative still rests with members. If members lend money to the co-operative they will be paid interest on this money but normally this does not in itself give people a say in the running of the co-operative. Membership and voting rights go with trading done through the co-operative rather than through lending money.

Laws and regulations for co-operatives differ from country to country so any fish farmer interested in co-operatives is advised to seek advice from fisheries officers and local agricultural or business officers as to the regulations which would affect them.

10.3 What Is A Marketing Co-operative?

In marketing co-operatives, members sell all or at least a large part of their fish to the co-operative who markets them on their behalf. Usually just how much is to be sold through the co-operative will be stated in the rules and often a condition of joining is that all fish must be marketed in this way. The producer receives an agreed price for the fish and also a share in any profits which the co-operative makes. Each member has a say and a right to vote to determine the marketing policies of the co-operative. These policies will cover the same decisions as a private business - decisions about the products to be marketed, prices, distribution and buying decisions. They must also cover the rules for setting the prices at which

fish is bought from members. Members are expected to supply the products in the form that the co-operative wants, and, as far as possible, at the time when it wants them.

10.4 Advantages That Co-operatives May Offer

The purpose of a marketing co-operative is to obtain marketing advantages for members that would not otherwise be available to them. These cover some or all of the following:

1. SAVINGS IN MARKETING COSTS
   By pooling activities economies may be achieved so that marketing costs fall. There is scope for these sorts of economies in:

   - COMBINING MARKET RESEARCH
     the same information can be collected once for the co-operative instead of many times by each member separately
   - COMBINING SELLING ACTIVITIES
     fewer customer visits and contacts in total are needed and the amount of administration needed to handle orders is reduced
   - COMBINING TRANSPORT TO MARKETS
     there may be scope for reducing transport costs by combining loads.

2. MORE EFFECTIVE MARKETING
   Producers may be able to make their product more attractive to customers if they combine together. For instance, by combining fish from different farms the co-operative may be able to offer customers larger quantities of graded sizes than before. If production from different farms can be staggered so that fish are available to customers for longer periods of the year, this can help to develop a more stable market for everybody.

   If the combined output is large enough, the co-operative can benefit by employing a manager who has experience in marketing. Since fish farmers often do not have a great deal of experience and also find that most of their time is taken up running their farm, this can be very useful.

   There are examples where the running of the co-operative is taken over by the members with the most experience. This helps the other members who also learn through this process.

3. OPPORTUNITIES TO EXPLOIT NEW MARKETS
   Members can pool resources to increase the number of products which they offer and the number of markets which they can supply. By pooling finances they may be able to collect enough investment funds to buy some of the following:

   - ice-making plant
   - gutting and cleaning facilities
   - packing facilities
   - freezing plant
   - smoking and drying facilities
   - vans and lorries

In this way the co-operative can open up new markets further away from the farms and can develop new markets for more highly processed fish. The individual producer might not have the resources to do this alone. This is probably one of the most common and successful reasons for setting up co-operatives.

4. OPPORTUNITIES TO INCREASE BARGAINING POWER
By grouping together to control a larger proportion of supplies a better deal may be obtained from customers. Customers are now more dependent on one source of supplies and they cannot play individual suppliers off against each other.

Often, however, this advantage is difficult to achieve in practice unless the co-operative has contol of all supplies, and this is unusual. Frequently customers, especially wholesalers, can switch to supplies from other areas or to other fish and they are much less dependent on the fish farmer than the fish farmer is on them. It can often be difficult for the fish farmers to make good use of any power because they do not have as much information as their customers about outside markets.

Nevertheless, while the co-operative is unlikely in many cases to get dramatic increases in the prices received, it will have more influence than individuals acting in competition with each other. If combining supplies is accompanied by some of the other benefits mentioned above, the overall effect can be considerable.

10.5 Marketing Co-operatives: The Difficulties

There are also difficulties which co-operatives face:

1. DEVELOPING JOINT RESPONSIBILITY
Joining a co-operative means that the farmer's livelihood now depends on everybody's combined efforts and is no longer within his own control. This means that everybody must be committed to making the co-operative work. Each member has to accept the decisions of the majority of members even if they do not agree with them. If people are not prepared to do this, the co-operative will not work because everyone will not be working to achieve the same objective.

The most common conflicts are about marketing policies and about profits. If some farmers are not committed to the co-operative, they may not be willing to leave enough of the profits in the co-operative to pay for future developments. They may be unwilling to lend funds for new machinery and equipment.

2. MANAGEMENT PROBLEMS
Success will depend on the attitudes of members towards marketing. If members do not know a great deal about marketing and they take poor decisions, the co-operative will not be very successful. It can be difficult to take decisions quickly if there is a lot of disagreement among members. This contrasts with the freedom and speed with which the private business can take decisions. Before joining a co-operative a farmer must therefore feel confident that other members either understand marketing issues or are prepared to listen to people who do.

Running co-operatives is not easy and it is therefore very important that prospective members weigh the benefits carefully against the difficulties. Co-operatives have to compete with private wholesalers, private processors and private fish farmers. Unless they are just as efficient as their competitors they will not be successful. Private businesses however do not find decision-taking as difficult as co-operatives because usually fewer people are involved.

10.6 Running A Successful Co-operative

The co-operative is more likely to be successful if certain rules are followed in the way that it is set up and the way that it is organised.

10.6.1 Initial study of feasibility

Before starting the co-operative members should be able to see quite clearly what they are committing themselves to, what are the risks and how much profit is likely to be made. Answers must be found to the following questions:

1. IS THE IDEA FEASIBLE?
(Using the same checklists as in chapter 3)
The market potential is assessed, sales incomes and costs are calculated so that profit can be estimated. The main risks should be listed and members should discuss how serious these risks are and how willing they are to take them.

2. WILL FARMERS MAKE MORE PROFITS WITH THE CO-OPERATIVE THAN IF THEY STAY INDEPENDENT OF EACH OTHER?
It is not enough for the co-operative to look profitable; it also has to be a better way of doing things than other alternatives.

3. CAN THE CO-OPERATIVE GET THE RESOURCES TO CARRY OUT ITS PLANS?
For instance:

   a. DOES IT HAVE THE RIGHT PEOPLE?
      committed members who are good at
      - marketing
      - organisation of collection and distribution
      - administration
      - handling finances

      If staff are needed, are the right people available?

   b. ARE MEMBERS ABLE TO COMMIT THE MONEY NEEDED TO SET IT UP?
      Can they get any grants? Can they get loans? Can they repay the interest?

   c. BUILDINGS AND EQUIPMENT
      If they are needed, are they available or can they be found?

4. ARE THE INTERESTS OF MEMBERS OF THE CO-OPERATIVE SIMILAR ENOUGH FOR THEM TO BE ABLE TO WORK TOGETHER?
Problems can occur within co-operatives if the interests and situations of the members are very varied. For instance efficient farmers can find it difficult to work with other farmers who have much higher costs. Bigger farmers can have problems working with smaller ones because the sorts of markets that they want the co-operative to supply can be different. The

smaller the expected benefits for everyone from the co-operative, the more likely it is that conflicts will occur.

5. BUDGETS

It is not enough for these arguments to be discussed. Members must estimate sales incomes and costs and prepare budgets for the co-operative. These should cover the first three years. For the first year, detailed figures should be prepared for expected sales incomes, costs of buying fish, costs of buildings, interest charges and marketing costs (see chapters 3 and 11). Outline details for incomes and costs should be prepared for the second and third years.

10.6.2 Objectives

If the venture looks worthwhile, the next step is to draw up clear objectives for the co-operative, drawn from the findings of the study. These should be specific, stating exactly what the co-operative aims to achieve year by year. The policies which are to be used to achieve the objectives should also be stated and both objectives and policies should be approved by a meeting of all members.

10.6.3 Rules and responsibilities

The co-operative should have a set of rules and responsibilities, written down and understood by all members. This will help members to understand why things are being done in particular ways, helping to avoid disputes and save time. These rules should cover:

- HOW PROFITS ARE TO BE DIVIDED AMONG MEMBERS
- HOW PEOPLE ARE TO BE REWARDED IF THEY LEND MONEY TO THE CO-OPERATIVE
- HOW MUCH OF EACH MEMBER'S PRODUCTION IS TO BE SOLD TO THE CO-OPERATIVE
- THE ALLOCATION OF RESPONSIBILITIES FOR TASKS
- HOW BUYING AND SELLING PRICES ARE TO BE FIXED
- THE RESPONSIBILITIES OF ANY STAFF WHO ARE EMPLOYED AND HOW THEIR WORK IS TO BE SUPERVISED
- THE DECISIONS THAT MUST BE TAKEN AT MEETINGS OF MEMBERS AND THE DECISIONS THAT CAN BE DELEGATED TO INDIVIDUAL MEMBERS OR TO STAFF
- THE RESPONSIBILITIES OF MEMBERS TO SUPPLY THE CO-OPERATIVE WITH FISH INCLUDING THE QUALITY REQUIRED, THE WAY IT IS HANDLED, WHEN IT SHOULD BE AVAILABLE, THE QUANTITIES TO BE SUPPLIED.

It would be difficult and inefficient to call meetings for day-to-day decision-taking but conflicts between members and between members and staff are less likely when the rules for handling different types of decisions have been agreed.

Members should seek advice, as mentioned earlier, on the outside regulations which affect the way in which they can run the co-operative.

10.6.4. Communications

Problems occur within the co-operative when members feel that they do not know what is going on and that they are being excluded from decision-taking. The procedures listed above will help to avoid this, but it is also necessary to have regular meetings of members to report on what is

happening and to discuss progress. Once the co-operative is running successfully it may only be necessary to have general meetings once a month or once every two months, but in the early days more meetings will be needed. The number and timing of meetings should be decided by discussions of members.

10.6.5 Procedures

A co-operative is a business like any other, so it has to be successful in competition with other businesses and will make profits by following the same rules for marketing that have been discussed in other chapters of this manual. Just like a private business, it must make its profits by identifying market needs which it can meet profitably and doing so as efficiently as possible.

CHECKLIST

SETTING UP:

1. ARE THERE OPPORTUNITIES FOR PROFITS THROUGH FORMING A CO-OPERATIVE WHICH DO NOT OTHERWISE EXIST?

2. DO OTHER MEMBERS OF THE CO-OPERATIVE HAVE SIMILAR ATTITUDES AND INTERESTS TO YOURS?

3. HAVE YOU CARRIED OUT A PROPER FEASIBILITY STUDY?

4. HAS THE STUDY IDENTIFIED REAL BENEFITS FROM THE CO-OPERATIVE?

RUNNING THE CO-OPERATIVE:

1. DO YOU HAVE CLEAR OBJECTIVES?

2. DO YOU HAVE CLEAR POLICIES?

3. DO YOU HAVE CLEAR RULES?

4. HAVE YOU ALLOCATED RESPONSIBILITIES CLEARLY?

5. HAVE YOU MADE SURE THAT ALL MEMBERS KNOW WHAT IS GOING ON AND WHAT THE RULES ARE?

6. DO STAFF HAVE A CLEAR DEFINITION OF THEIR RESPONSIBILITIES?

---

11 PLANNING AND RECORDING FOR MARKETING DECISIONS

11.1 Record-Keeping

Good information is needed for marketing decisions and the main bases of this information are the records kept by the fish farm itself, detailing its activities and recording costs and income. If the records are kept carefully and systematically this will help fish farmers to:

1. Choose the best ways of marketing
2. Manage production and marketing more efficiently so that profits are increased
3. Provide information for future planning

A system for record-keeping is provided below for fish farmers who are operating a number of ponds on a commercial basis, in other words for farmers who use the ponds to provide a money income and not just to feed themselves and their family. These forms may need some modification in details to meet the different circumstances of different fish farmers but the basic structure should be suitable in most situations.

11.2 The System

The basis of successful record-keeping is to record activities as soon as possible after they have taken place, thus the system is designed so that entries can be made daily if necessary. This is done by the use of separate forms for each month for production and marketing activities. These can then be combined for the month and when the monthly totals are added up this produces a form called the Annual Balance Sheet. Outline balance sheets have already been presented in chapter 4 which dealt with aquaculture economics, but this chapter shows how these balance sheets are built up from the daily recording system.

11.3 The Records

11.3.1 The forms

It is suggested that two forms should be kept on to which daily records can be entered. They are:

FORM NUMBER 1: RECORD OF PRODUCTION ACTIVITIES
This records everything that is done on the farm to produce fish.

FORM NUMBER 2: RECORD OF MARKETING ACTIVITIES
This records dealings with customers and the activities carried out after harvesting to get the fish to markets.

Monthly summaries are presented on a third form:

FORM NUMBER 3: MONTHLY SUMMARY AND ANNUAL BALANCE SHEET
This summarizes monthly costs and incomes which can be totalled to

produce a picture of operations for the year as a whole.

Other forms necessary for full recording are:

FORM NUMBER 4: DEPRECIATION COSTS

FORM NUMBER 5: FIXED COSTS

FORM NUMBER 1

RECORD OF PRODUCTION ACTIVITIES

MONTH YEAR POND

DATE	ACTIVITIES	INPUTS TO PONDS	RUNNING COSTS	FISH TAKEN FROM POND	
				NUMBER	WEIGHT (Kg)
TOTAL					

11.3.2 Record of production activities

To estimate the costs of production, a record should be kept of production activities and how much they cost. It is most convenient to keep separate records for each pond, especially when stock cycles or conditions in each pond are different. If there are other associated activities such as crops and animal raising they should also be recorded, although they have not been included in the system used here.

The costs to be included on the first form are those costs that are directly related to activities undertaken - costs which are called running costs or variable costs. All costs which are directly related to activities should be included - feeding fish, cutting the grass around the ponds, harvesting costs and so on. All inputs used should be noted and costed as should the numbers, weights and species of fish harvested. An example is shown in figure 11.1

FIGURE 11.1 FORM 1 SAMPLE ENTRY

MONTH January YEAR 1986 POND 2

DATE	ACTIVITIES	INPUTS TO PONDS	RUNNING COSTS ($)	FISH TAKEN FROM POND	
				NUMBER	WEIGHT (Kg)
January 1	repairing paths 4 hours	-	4.0	-	-
January 2	fertilizing pond 1 hour		1.0		
		5 kg fertilizer	5.0		
January 10	harvesting fish 1 hour	-	3.0	15	30

Figure 11.1 Form 1 Sample entry

FORM NUMBER 2

RECORD OF MARKETING ACTIVITIES

MONTH YEAR CUSTOMER/MARKET

DATE	ACTIVITIES	MONEY SPENT (RUNNING COSTS) $						SALES		
		TRANSPORT	ICE	BOXES	WAGES	OTHER	TOTAL	KG	PRICE PER KG $	SALES INCOME $
TOTAL										

Fish sold to workers:

Fish eaten by family:

Fixed costs which do not vary directly with activities undertaken (see chapter 4) are included on Form Number 5.

11.3.3 Record of marketing activities

Form Number 2 is to be completed for the marketing activities of the fish farm and a separate form should be completed for each of the major markets to which sales are made. For convenience, marketing activities are defined as everything to do with dealing with customers and everything that happens to the fish after they have left the pond. Exactly how each farmer finds it most convenient to make this distinction will vary. For instance, if fish are processed it will be useful to add another separate category to the production form to cover this or create a separate form to cover processing activities. In order to keep things simple, this has not been done here.

What is important about this form is that, for farmers selling to a number of different markets, it identifies the costs associated with supplying each market separately. For instance, if some fish are sold at the farm gate and others are delivered to a wholesale market, the costs and income from each market will be kept separate so that comparisons can be made of the incomes earned in different ways.

The costs to be included in this form are again running costs or variable costs. These are the costs of activities undertaken to supply each market which vary directly with the level of activities undertaken. An example is of the fuel costs and labour costs associated with delivering fish to markets. Fixed costs which do not vary directly with the level of activity are included in Form Number 5. An example of such a fixed cost would be the costs of a manager who looks after all sales to all markets and who is paid a fixed annual salary. Another example of such a fixed cost is the depreciation costs on the van (see below).

A sample entry in Form 2 is shown in figure 11.2.

FIGURE 11.2 FORM 2 SAMPLE ENTRY

MONTH January YEAR 1986 MARKET: Wholesale Market

DATE	ACTIVITIES	MONEY SPENT (RUNNING COSTS) $						SALES		
		TRANSPORT	ICE	BOXES	WAGES	OTHER	TOTAL	KG	PRICE PER KG $	SALES INCOME $
January 10	Selling fish to local households from van	7	2	1	15	-	25	100	1.0	100
January 11	Visit to wholesaler	3	-	-	3	6	-	-	-	-

Figure 11.2 Form 2 Sample entry

FORM NUMBER 3

MONTHLY SUMMARY AND ANNUAL BALANCE SHEET

YEAR:

MONTH	FISH SALES (kg)	RUNNING COSTS $									TOTAL RUNNING COSTS $	SALES INCOME $	CONTRI-BUTION $	FIXED COSTS $	TOTAL COSTS $	PROFIT $
		PRODUCTION					MARKETING									
		WAGES	FEED	FERTILIZER	OTHER	TOTAL	TRANSPORT	WAGES	OTHER	TOTAL						
January																
February																
March																
April																
May																
June																
July																
August																
September																
October																
November																
December																
TOTAL																

11.3.4 Monthly summary and annual balance sheet

Form Number 3 combines information from production and marketing activities for all ponds and markets to give an overall picture of the costs of running the farm and the sales income coming in during the month. The total running costs of production and marketing for the major categories of costs are transferred from Forms Number 1 and 2. Where there is more than one pond, the costs for each pond will have to be added together at this stage. The costs and revenues from separate markets will also have to be added together before being transferred to Form Number 3.

The fixed costs of the farm now appear for the first time and will have to be entered on Form Number 3. It will be remembered that these are costs which do not vary directly with output and this will include costs such as depreciation, insurance, interest on loans, maintenance and manager's salaries if any. Depreciation is different from other fixed costs (see Chapter 4) because it is an allowance for equipment wearing out. It is however included here as a reminder that money must be set aside regularly so that money is available to replace equipment when necessary. Form Number 4 can be used to calculate monthly depreciation figures.

FORM NUMBER 4

DEPRECIATION COSTS

YEAR:

ITEM	COST OF REPLACEMENT (A)	EXPECTED LIFE (YEARS) (B)	ANNUAL DEPRECIATION (C) = A/B	MONTHLY DEPRECIATION (D) = C/12
TOTAL				

[Depreciation costs have already been described in chapter 4 but for convenience an example is repeated here.]

Figure 11.3 shows a sample depreciation entry for a van owned by the fish farmer.

FIGURE 11.3 DEPRECIATION COSTS: SAMPLE ENTRY

YEAR

ITEM	COST OF REPLACEMENT ($)	EXPECTED LIFE (Years)	ANNUAL DEPRECIATION ($)	MONTHLY DEPRECIATION ($)
Van	150	5	300	25

Figure 11.3 Depreciation costs: Sample entry

The van would cost $1500 to replace and lasts for 5 years, so annual depreciation is:

$$\frac{\$1500}{5 \text{ years}} = \$300$$

and monthly depreciation is:

$$\frac{\$300}{12 \text{ months}} = \$25$$

Together with other fixed costs the depreciation figure can then be entered on Form Number 5 which is the monthly form for fixed costs.

FORM NUMBER 5

FIXED COSTS

MONTH YEAR

DATE	INSURANCE	RENT	TAXES	LOAN INTEREST	MAINTENANCE	DEPRECIATION	OTHER	TOTAL
TOTAL								

Returning to Form Number 3, by adding up all the running costs for the month and subtracting them from sales income, the result is CONTRIBUTION or OPERATING PROFIT for the month. This shows whether running costs are being covered and what contribution is being made towards covering fixed costs for that month. Finally, profit for the month is calculated by taking total costs (running costs plus fixed costs) from sales income.

The categories of costs included are suggestions: in practice there should be separate headings for the most important items, but these will vary from farm to farm. For instance, if feed is unimportant but fuel is important, fuel can be identified separately and feed instead combined with other minor costs in the "others" category.

If the monthly records have been filled in regularly it is a straightforward process to complete the balance sheet to give annual totals. This is because annual totals are the sum of the costs and incomes for each month over the year. Contributions and profits for the year are calculated in just the same way that they were earlier calculated for each month. This gives a picture of how well the fish farm has done over the year.

The information on the balance sheet and on the other forms gives a useful base for many marketing decisions, as well as for decisions in other areas of the management of the fish farm. The most important questions which can be answered by using the information are listed in figure 11.4.

11.4 Planning

11.4.1 The plan

Record keeping and the analysis of activities over the year is the beginning of the process of planning the operations of the farm over the next year and over the next growing cycles. "Planning" means using knowledge of the state of markets and the economics of operations to decide what is to be aimed for in the future and how it is to be achieved. It is helpful to plan because planning forces people to think carefuly about what they are doing and about the best way of doing it. As a result decisions are likely to be better than if they are taken on a day-to-day casual basis.

FIGURE 11.4 USING BALANCE SHEET INFORMATION

QUESTION	ACTION
How does profit compare with previous years?	Identify reasons for changes. Identify sources of improvements for coming year.
Have prices been higher/ lower than previous years?	Identify reasons for changes. Investigate whether there are ways of altering marketing to get higher prices for coming year.
Do contributions vary for different markets?	Identify reasons. Is it possible to re-allocate sales between markets to raise profitability?
Have costs been rising compared with income? Have some costs been rising faster than others?	Identify reasons. Can any reorganisation of production or marketing reduce costs without affecting the value received for the fish?
Can profits be improved by altering the pattern of sales during the year?	Identify reasons for patterns. Do they reflect customer demand or ease of production? If ease of production, should more attention be paid to customer demand?
How do the financial needs of the farm vary for different months?	Make plans to set money aside or borrow money for months when costs are greater than sales income.

Figure 11.4 Using balance sheet information

How far ahead it is necessary to plan will depend very much on how far ahead the fish farmer has to look when taking decisions. Since fry may take 18 months or more from stocking to reach marketable size, the farmer will have to consider at the time when stocking decisions are taken what is likely to happen to markets and costs over the next 18 months. Plans must therefore cover this period of time. If longer term decisions are being taken - for instance decisions to build new ponds or buy new equipment, plans, at least in outline, have to be prepared which go three or more years ahead. Whatever the period, however, it is easiest to plan in units of a year since this is the unit of time on which most records are based.

A plan involves the processes listed in figure 11.5.

Figure 11.5 The Annual Plan

Audit of existing position	Analysis of existing operations Market research to identify any expected changes in markets and competition
Objectives for coming year	Targets for profits and production levels
Strategies	Marketing policies - products, prices, distribution, selling, to serve target markets and achieve objectives
Budget	Outline forecast of costs, incomes and profits expected

Plans should be written down because this makes people think more carefully and it provides a record to guide actions. They do not have, however, to be very long. One or two pages should be enough.

11.4.2 How to plan

Each stage of the plan is built on the previous stage. The audit can be based on the questions raised in chapter 3 which discussed how target markets and products should be chosen. The record forms should also be used to provide an up-to-date picture of how successful the farm has been with existing markets and marketing plans. Monthly forms should be analysed to compare differences between profits for different markets and the production forms can be used as a basis for estimates of production potential for the coming year.

From this analysis, target markets can be selected and decisions can be made about the marketing policies to be followed. Sometimes, if there have been no important changes in conditions, plans will be very similar to activities in the previous year. If, however, there have been changes in conditions, this may mean changes in objectives, markets and policies.

Finally, a budget should be prepared giving estimates of costs and incomes over the coming year so that the financial needs of the farm are known and arrangements made to provide funds as necessary. If prices and costs are expected to rise over the period of the plan because of inflation, figures should be used which allow for this. If these funds are not available, then the plans should be changed. Preparing budgets is therefore a good way of checking just how sensible the plans are and of making sure that they are not unrealistic and over-ambitious. Form Number 6 is a suggested way of preparing this budget.

FORM NUMBER 6

BUDGET FOR ANNUAL PLAN FOR 19..

1. SALES

	SELLING PRICE per Kg	SALES (Kg)	SALES INCOME ($)
Market 1			
Market 2			
TOTAL			

2. PRODUCTION

POND 1 (kg)	POND 2 (kg)	POND 3 (kg)	TOTAL (kg)

3. BUDGET

	$	$
Sales Income		
Market 1		_____
Market 2		_____
TOTAL		_____
Costs		
Running Costs Production		
Feed	_____	
Fertilizer	_____	
Wages	_____	
Other	_____	
TOTAL	_____	
Running Costs Marketing		
Transport	_____	
Wages	_____	
Other	_____	
TOTAL	_____	
Total Running Costs	_____	
Fixed Costs	_____	
Total Costs	_____	
Expected Profit		_____

If plans are needed for more than one year ahead, then one form should be used for each year.

It will also be useful to break the annual plan for the coming year into a rough month-by-month plan so that plans can be made for marketing policies and financial needs during the year.

11.4.3 Modifying plans

Of course it is not always possible to keep to plans throughout the period of the plan. No one can predict the future perfectly and fish farmers have to be alert to unexpected changes in conditions and flexible in adapting to them. This is particularly important when little control exists over conditions because markets are changing rapidly and/or they are being supplied under very competitive conditions.

This does not, however, mean that planning is a waste of time. Without thinking hard about what is being aimed for and how it is to be achieved, it is not possible to make good marketing decisions. Preparing a regular plan is the best way of making sure that this is done.

M-44
ISBN 92-5-102460-X